Social Comparison in Physical Education:

Motives, Frames of Reference and Consequences

By

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“If we say that a thing is great or small because it is relatively great or small, then there is nothing in all creation which is not great, nothing which is not small.”

Chuang Tzu 369-298 BC, Autumn floods, Translated by Lin Yutang, Chinese writer and translator from The Wisdom of China and India (1942). New York: Random House, pp. 635-91.

Abstract

Grounded in Festinger's (1954) theory of social comparison processes, this thesis aims to examine three aspects of this theory in the physical education context, where ability is the characteristic under comparison: adolescent motives for comparison; frames of reference; and consequences of comparison. Although there is a growing evidence base investigating social comparison processes in academic subjects, there remains a dearth of knowledge concerning the role that comparison can play in determining outcomes in physical education. Furthermore, there is very little research within psychology in general that examines young peoples' motives for and outcomes of comparison. This thesis begins to address this lack of knowledge by providing an in-depth exploration of social comparison processes (Study 1) which is followed by an examination of the role that two frames of reference (the class and a chosen individual) and motives for comparison (evaluation, improvement, enhancement) play in determining: physical self-concept; engagement; disaffection; self-efficacy, positive affect and negative affect (Studies 2-4). Additionally, the moderating role of behavioural regulations, motivational climate and perceived autonomy support are also investigated. Across the four studies, comparative evaluations with the class are influential in determining both positive and negative outcomes whilst the role of individual comparisons varies according to the dependent variable under investigation. Evidence for both the moderating and direct role of motives for comparison is presented as well as support for the moderating role of motivational climate and behavioural regulations. The findings highlight the need to investigate multiple aspects of social comparison processes simultaneously in addition to investigating moderators of comparative evaluations in order that a more comprehensive understanding of social comparison processes is achieved.

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Peer reviewed journal articles:

Barnes, J. S., & Spray, C. M. (2013). Social comparison in physical education: An examination of the relationship between two frames of reference and engagement, disaffection and physical self-concept. *Psychology in the Schools, 50,* 1060-1072. doi: 10.1002/pits.21726

Conference proceedings:

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Barnes, J. S., & Spray, C. M. (2012, April). Student engagement, disaffection and physical self-concept in physical education: Do social comparisons play a role? *Oral presentation presented at the British Psychological Society Annual Conference 2012,* London, United Kingdom

Barnes, J. S., & Spray, C. M. (2012, July). Affective Responses to Social Comparison in PE. *Poster presentation presented at the 17th Annual Congress of European College of Sports Sciences,* Bruges, Belgium.

Barnes, J. S., & Spray, C. M. (2012, July). A systematic review of the correlates of social comparison in physical education. *Poster presentation presented at the 17th Annual Congress of European College of Sports Sciences,* Bruges, Belgium.

Chapter I

Introduction

Western societies have seen a rapid increase in the number of overweight and obese individuals in the last 25 years. Currently, the United Kingdom has the highest number of obese individuals in Europe (The Organisation for Economic Co-operation & Development, 2013), with the Department of Health (2013) detailing that 61.3% of adults and 30% of children (aged 2-15) in England are either overweight or obese. Although the number of obese and overweight children in England appears to be beginning to level off (The Health & Social Care Information Centre Health, 2012), the cost of treating problems associated with being overweight or obese has risen to more than five billion pounds per year (Department of Health, 2013). In addition to providing a cost to the National Health Service, being overweight or obese has been related to an increased risk of developing Type 2 diabetes and heart disease, as well as a decline in self-esteem and mental health (Department of Health, 2013). Furthermore, research has demonstrated that individuals who are overweight or obese (determined by body mass index) as children are at a higher risk of obesity or being overweight at 35 years of age with this risk increasing with age (Guo, Wu, Chumlea & Roche, 2002).

The longevity of the influence of being overweight or obese in childhood and the increasing number of people classified as obese has led researchers to investigate which factors are involved in determining body mass index across the lifespan and whether these factors can be manipulated to produce more adaptive outcomes for individuals. At present, researchers have found that socio-economic status, time spent engaged in sedentary activities, diet and level of physical activity (Department of Health, 2013; Health Survey for England, 2008) are key factors in determining body mass index of young people (under 18 years of age). Physical activity level is one factor that has subsequently been the subject of focus for both researchers and the Government, with published guidelines recommending the minimum requirement for humans from early childhood through to adulthood. Within the United Kingdom, it is currently recommended that children and young people (aged 5-18 years) should be engaging in at least 60 minutes of moderate to vigorous physical activity every day. Even though these guidelines exist, only 32% of boys and 24% of girls aged 2 to 15 years met this recommendation in the last published Health Survey for England (The Health and Social Care Information Centre, 2008).

It is a task for researchers, therefore, to identify opportunities for increasing physical activity participation for young people as well as recognising and understanding the barriers that young people may face when trying to engage in physical activity. One context which provides an opportunity for increasing levels of physical activity in which young people

engage is physical education in the school environment. Physical education provides a period of time during the week when *all* young people who attend school in the United Kingdom have the opportunity to take part in physical activity. Research within physical education can, therefore, provide insight into physical activity behaviour and experiences of young people from a range of backgrounds (e.g. varied socio-economic status), with differing levels of motivation for physical activity. Furthermore, the results from research (when there is a strong base of evidence) within physical education can be used to make recommendations for policy change to the Government. If these recommendations were implemented they would have the potential to positively impact young people across the country.

The most recent Physical Education and Sport Survey (Department of Education, 2010) indicated that 86% of pupils in Years 1-11 participated in at least 120 minutes of curriculum PE each week. Although these 120 minutes do not in themselves meet the recommended weekly target for physical activity for young people, physical education can clearly provide a proportion of the time recommended for this age group to engage in moderate to vigorous physical activity. Whilst young people are provided with this opportunity to take part in physical education classes, there still remain questions concerning what proportion of class time is spent by these young people actively engaged in moderate to high vigorous activity (as opposed to listening to the teacher/learning new skills) and, when given an opportunity to do so, how motivated these young people are to actually put in the effort to engage in this moderate to high vigorous physical activity.

Most importantly, physical education may be the primary/only access point or opportunity that young people have to engage in physical activity and physical skill development. This in turn means that physical education is likely to provide the main source of information for an individual concerning his/her physical skill development and ability or competence at completing certain tasks (Department of Education, 2013). This information may then shape the individual's motivation to engage in physical activity and subsequently their future participation (Coakley & White, 1992).

Motivation is considered a key determinant in both the effort and time that individuals will spend engaged in all manner of activities (Deci & Ryan, 2000). Physical activity is one such pursuit which is affected by motivation levels and consequently motivational processes have been a key focus for investigation of researchers wishing to understand and increase physical activity participation. Two theories which have been used extensively to examine motivation are self-determination theory (Deci & Ryan, 2000) and achievement goal theory (Ames, 1992). Although these theories have provided insight into adolescent motivation for

physical activity, another theory which provides a number of hypotheses regarding self-evaluation of ability and which, may provide useful insight into motivation is social comparison theory (Festinger, 1954).

Social comparisons have been debated and discussed by philosophers (e.g. Aristotle; Confucius), used in poetry (Shakespeare, 1609), and engaged in by humans for centuries (Chuang Tzu, 369-298 BC). The first theory of social comparison processes was not published however until 1954 (Festinger, 1954). Festinger's theory of social comparison processes is based fundamentally upon the hypothesis that humans are 'active searchers' of information and, as such, possess an innate desire to evaluate their abilities and opinions. This drive allows an individual to determine their strengths and weaknesses and decide whether or not they will be able to cope in different situations (Festinger, 1954). Social comparisons are now considered to be ubiquitous (Gilbert, Giesler & Morris, 1995; Klein, 2003), engaged in by humans both consciously and sub-consciously from early childhood onwards with a variety of consequences linked to comparisons made. Consequences of social comparison include individual's self-concept (academic & physical), ability perceptions, achievement, affect, physical activity participation and behaviour. Although it is widely acknowledged that humans of all ages engage in social comparisons, and that comparison behaviour may change as humans age (Butler, 1992; Butler & Ruzany, 1993) most research (e.g. Locke, 2007) has utilised adult samples, leaving a lack of clarity surrounding social comparison processes (including consequences) engaged in by young people.

Relationships between social comparison and the various outcomes mentioned above have previously been found, although these relationships have yet to be fully examined in the physical education environment. Activity in this environment leaves the proponents far more exposed than in academic subjects and the need to understand the impact of social comparison in physical education is therefore essential in order that researchers are able to intervene at this key developmental stage. Intervention at this point could positively impact outcomes in numerous ways in the short, medium and long term. In the short term benefits could include, in addition to overall health and fitness, improved concentration and attainment leading in the medium to long term to further education, better career prospects, a higher standard of living, improved health, longevity and quality of life with the added benefits of increased productivity and reduced medical bills for the country as a whole. School physical education provides the last opportunity to influence the impact of comparison en masse, as once students leave school this opportunity is lost. One can postulate that improving the impact of social comparison at an earlier age is likely to be

beneficial for a number of reasons such as long term engagement in physical activity and the development of life-long positive physical self-perception. Whilst developing a positive self-image and the confidence to engage in physical activity does not necessarily provide the over-arching solution to the obesity epidemic or participation in physical activity, it does mean that people have the confidence in their ability to engage in physical activity if desired whereas those who do not develop a positive image may feel disenfranchised. Studying social comparison processes and the ramifications of comparison in physical education also has the potential to inform/enhance/alter the way that teachers practice so that more positive outcomes can occur. Whilst this in itself is a relatively small activity, it could lead to enormous benefits as described above.

The aim of this thesis is, therefore, to provide insight into social comparison processes engaged in by adolescents within an important educational context, physical education. To achieve this purpose, the thesis begins with a literature review (Chapter IIA) which critiques previous research investigating social comparison. This review draws upon research concerning both adult and adolescent samples because there is, in some instances, little research evidence involving adolescents to inform hypotheses. The following Chapter (IIB) details a systematic review of social comparison in physical education. This review was carried out to provide clarity on the state of existing research investigating both social comparison and physical education. The chapter closes with a rationale for each of the following four empirical studies which are the subject of this thesis.

The studies within this thesis build upon one another providing progressive insight and knowledge into adolescents' motives for comparison, frames of reference utilised for comparison and outcomes associated with comparisons made in physical education. The findings from the thesis as a whole are brought together in the final chapter, the general discussion. This final chapter provides an overview of the main findings, highlights the contribution to knowledge made by the collection of studies completed to form the thesis, before addressing the limitations of the research and recommendations for future research. The general discussion and thesis are then drawn to a close with the final conclusions.

Chapter II

Part A

Literature Review

If you compare yourself with others, you may become vain and bitter; for always there will be greater and lesser persons than yourself.

(Max Ehrmann, 1927; The Desiderata)

Humans are beings, active within their environment, taking part in multiple interactions with other humans as well as objects and animals every day. In the early 1950s, Festinger suggested that humans wish to move within their social structure and, due to this need, are influenced through communication from pressures within their surrounding environment. This was known as informal social communication. Shortly afterwards, however, Festinger (1954) developed this idea to suggest that human organisms are driven to evaluate their opinions and abilities and, in order to satisfy this need, engage in comparisons with others around them. This was termed social comparison. Not only does Festinger suggest that humans possess a desire to compare, but that one will tend to compare with those who are similar to oneself, and that in the case of abilities a unidirectional drive upward exists. In the school environment pupils are exposed to, and provided with, multiple opportunities to interact and compare with others. In particular, physical education provides a naturalistic environment in which young people are able to evaluate and compare their abilities with others. Evaluating one's abilities in physical education may have important consequences for motivation to take part both within the physical education lesson itself and physical activity outside of the class.

Motivation to take part in physical activity has been studied extensively, with findings suggesting that adolescence is a time when physical activity participation may begin to, or continue to, decline. Research detailing the long term benefits of physical activity participation, and the negative effects of not participating, provide the basis for examining what factors may serve to increase motivation and participation of levels of physical activity as well as those which may have the opposing effect. Studying adolescents and physical education, therefore, provides a naturalistic setting in which *all* young people in England and the United Kingdom must participate and so gives a good opportunity to examine the role of social comparison in predicting important educational outcomes in physical education.

Throughout this thesis, terms relating to young people namely children and adolescents are used inter-changeably to refer to people under the age of 18. The present chapter provides a brief history of social comparison, a description and critique of relevant theories which have developed since the inception of Festinger's (1954) hypotheses. This introduction to social comparison theories is followed by an in-depth discussion concerning

research which investigates motives, frames of reference and consequences of comparison. These sub-sections draw on knowledge and research developed through investigations based in a variety of contexts before concluding that a systematic review of research within physical education is needed to achieve a clear picture and definitive understanding of the present state of knowledge of social comparison in this context.

A Brief History of Social Comparison

Festinger's (1954) theory of social comparison processes provides the first attempt to define certain aspects of comparisons that humans make in order to survive within their environment. Primarily, the theory is concerned with why humans compare both their abilities and opinions, what processes may underlie/determine how these comparisons occur and who/what the target for comparison might be and what conditions might cause this target to alter. This is achieved by proposing nine key hypotheses alongside several corollaries and derivations.

In particular, Festinger (1954) suggests that humans are driven to compare by a desire to self-evaluate and that in the absence of objective information or in ambiguous situations individuals will use comparisons with others (humans) to fulfil this desire. The 'other' chosen to compare with in such a situation will ideally be deemed as 'similar' in ability or opinion, where similarity is dependent upon the dimension of comparison (Festinger, 1954). In the case of ability this is so that an accurate evaluation of the comparer's own ability can be ascertained. For opinions, however, Festinger (1954) proposed that humans seek individuals with similar opinions to themselves in order to evaluate the correctness of the opinion. This idea of 'similarity' in ability with a comparison other has been debated subsequently within research literature (Wheeler & Suls, 2005) and other variables such as sex and age have been suggested as attributes which may affect the choice of comparison target. Furthermore, Festinger (1954) proposed the existence of a unidirectional drive upward which is present in the case of abilities, but not opinions. This hypothesis is illustrated in Western cultures where individuals are driven by a desire to do better, for example, in schools, achieving a high grade is considered more desirable than a low grade.

This summary provides a brief insight into the theory detailed by Festinger (1954) which has subsequently been challenged through various investigations and examinations by many different researchers (e.g. Suls & Miller, 1977; Wheeler & Suls, 2005). These challenges to Festinger's (1954) theory have resulted in the proposition and development of several theories which are detailed in Table 2A.1.

Table 2A.1

Review of Social Comparison Theories[1]

Theory: The Proxy Model

Key Authors: Wheeler, Martin and Suls (1997)

Major Tenets/Propositions:

- Developed to help explain issues of predicting one's competence.
- Proposes that humans engage in a social comparison due to a desire to know "Can I do X?"
- Comparison with a similar other who has already attempted to do X, will allow the perceiver to evaluate whether they will or will not be able to complete the task.
- If the proxy/target appears to have put in less effort on a previous task than the perceiver, but both achieve the same outcome, then the expectation will be that performance on the subsequent tasks will not necessarily be the same.

Theory: The Selective Accessibility Model

Key Authors: Mussweiler and Strack (1999); Mussweiler and Strack (2000)

Major Tenets/Propositions:

- Making a comparison changes the accessibility of knowledge about the comparison target.
- Selectivity hypothesis - Compare with a given standard by selectively generating knowledge that is consistent with the fact that the standard is similar to the comparer.
- This comparison increases accessibility of the target that then influences subsequent evaluations.
- Individuals look for evidence that shows that the target is similar to the standard/self.

Theory: Big-fish-little-pond Effect

Key Authors: Marsh & Parker (1984)

Major Tenets/Propositions:

- Based on the frame of reference hypothesis.
- Initially developed to examine self-concept.
- Proposes: If two equally able students are placed in different classes (one homogenous/high ability & heterogeneous/mixed ability) that the student in the heterogeneous class will develop a higher/more preferable level of self-concept.

[1] This table includes theories which utilise a specific frame of reference in their tenets or propositions. Theories concerned with opinion rather than ability, for example The Triadic Model (Suls, Martin, & Wheeler, 2002) are not included. This table provides information on a number of key theories, but this is not an exhaustive list of *all* social comparison theories that may have been proposed in the literature.

Table 2A.1 continued

Review of Social Comparison Theories

Theory: Self-evaluation Maintenance Model

Key Authors: Tesser & Campbell (1982); Tesser, Campbell, and Smith (1984)

Major Tenets/Propositions:

- A model to explain why people engage in social comparisons.

Based on two assumptions:

1. That people behave in a way which will increase or maintain their self-evaluation.
2. Relationships with others can have a considerable impact on one's self-evaluations.

Included two other 'dynamic processes':

1. Reflection.
2. Comparison.

These processes have two variable elements which interact and affect self-evaluations:

1. The closeness of the relationship to a comparison other.
2. The quality of performance of the other.

- Comparison processes occur when one is confronted with another person's performance on a domain of high relevance to the self, particularly when this is a psychologically close person.
- Reflection processes occur when one is confronted with another person's performance on a domain that is not of relevance to the self, particularly when the other person is psychologically close.

Theory: Better Than Average Effect

Key Authors: Alicke (1985); Brown (1986); Brown (2012)

Major Tenets/Propositions:

- Individuals tend to class/appraise themselves as 'better than the average' when asked to compare their ability/other characteristics with others. It was originally proposed and has been generally accepted, that this is motivated by self-enhancement. However, this has recently been challenged (Brown, 2012) as the sole motivation for the better than average effect.
- The better than average effect (BTA) suggests that people appraise themselves more favourably than others because it makes an individual feel good to believe that he/she is above average.

Table 2A.1 continued

Review of Social Comparison Theories

Theory: Upward Assimilation Theory

Key Author: Collins (1996)

Major Tenets/Propositions:

- Upward comparisons may be used to enhance self-assessment. These comparisons will result in assimilation or contrast.
- Based on the premise that: Humans "actively seek upward comparison and that in doing so, sometimes enhance their self-evaluations" (p. 1).
- 2 further assumptions are proposed:

1. Upward comparisons are made "partly to achieve superiority to others." (p. 1)
2. "Upward comparisons are subject to construal." (p. 1)

- Whether assimilation or contrast results from comparison depends upon expectations.
- Similarity will result from expectations of similarity which may lead to assimilation and elevation of self-worth.
- Contrast will result from expectations of difference which may lead to feelings of inferiority and reduced self-worth.

Theory: Identification Contrast Model

Key Authors: Buunk and Ybema (1997)

Major Tenets/Propositions:

- Proposes that "people are in general motivated to identify themselves with others doing better, this is, to focus on similarities between themselves and the better-off other, to recognize things of themselves in the other, and to regard the others' position as similar or attainable for themselves." (p. 368)
- Upward identification will result in positive affect whereas downward identification may be avoided as it could be deemed as painful. Furthermore, downward comparisons will evoke contrast so that differences between the self and other are focused on and one's own superiority is seen.
- This theory assumes that humans compete for prestige and status within groups.

Table 2A.1 continued

Review of Social Comparison Theories

Theory: Theory of Downward Comparison

Key Author: Wills (1981)

Major Tenets/Propositions:

- Primary hypothesis: Humans may improve their subjective well-being by comparing with a less fortunate other.
- Situational Corollary: A decline in subjective well-being will evoke downward comparisons.
- Corollary 1. Passive downward comparison may occur when opportunity to compare with a less fortunate other arises.
- Corollary 2. Active downward comparison may also occur through:
  a. Derogation of another person.
  b. Causing harm to another person so that their situation is worse than one's own.
- Personality principle: Individuals with low self-esteem are more likely to engage in downward comparison.
- Target principle: Target will be someone considered 'safe'/of lower status.
- Ambivalence principle: People know that comparing downward is not admirable and have mixed feelings about engaging in it.

Theory: Related Attributes Hypothesis

Key Authors: Goethals & Darley (1977)

Major Tenets/Propositions:

- Developed to clarify Festinger's (1964) similarity hypothesis.
- Similarity is defined by individuals being similar on dimensions or characteristics which are predictive of the evaluated quality.

A Critique of Social Comparison Theories

Table 2A.1 provides a summary of a number of theories which have been developed since Festinger (1954) proposed his initial theory, to extend knowledge concerning social comparison processes. Although these models have advanced knowledge and understanding by examining various aspects of social comparison and attempting to produce theoretical based propositions, there are a number of limitations with the theories as a group. The following section will provide a critique of the theories included in Table 2A.1 as a collective.

Drawing these theories together, several patterns become evident. One commonality is that none of the theories have directly opposed or challenged Festinger's (1954). In most instances, the researchers have tried to build upon and extend Festinger's (1954) hypotheses rather than attempting to falsify his initial propositions. This means that there is no theory which directly opposes or tests his hypotheses, just modifies and extends them and hence many of his hypotheses remain largely untested. This begs the question as to why so many other theories exist when this initial theory has not been properly tested. A second limitation is the repetitive use of assimilation and contrast as outcomes of social comparison. For the purpose of this thesis they are used to define a change in self-perception, i.e. does self-perception move closer to the target (assimilation) or does the comparer contrast away from the target (look to believe that they are different from the target). The definition of these terms have been discussed in detail elsewhere (see Wheeler & Suls, 2007), with the need still remaining to articulate the exact meaning of these terms for social comparison literature in general. Additionally, it is possible to question the usefulness of these terms in understanding outcomes of comparison. i.e. what does assimilation with someone else mean to an individual? Is this a positive consequence or negative in some instances? Questions such as these remain unanswered and serve to add complexity to understanding of social comparison processes rather than aiding parsimony.

Furthermore, these theories (Table 2A.1) include hypotheses involving both evaluation and enhancement motives, but to date, have failed to encapsulate other motives for comparison such as improvement, demonstrated as important (Wood, 1989) in research studies which are not attempting to develop new 'theories', but instead challenge different hypotheses which Festinger (1954) initially proposed. Moreover, the group of theories detailed in Table 2A.1 fail to explain when a motive for comparison such as enhancement or evaluation might be more beneficial to an individual, or in which situations a particular motive is likely to be used. A dearth of knowledge, therefore, exists within current theoretical propositions concerning motives for comparison.

Additionally, the information regarding the frames of reference or a target used for comparison is limited within these theories. The big-fish-little-pond effect (BFLPE) has tended to focus on the class and school average as the frame of reference. However, the majority of the theories seem to allude to comparisons with individuals, but do not necessarily explicitly state this. There has been some advancement concerning how or what can characterise 'similarity' to a target (Goethals & Darley, 1977; Duquin, 1980a; 1980b) and how this can play a role in determining target choice, however, there still remain many

questions which need to be answered before a clear understanding is achieved. As a consequence of a lack of engagement with different frames of reference, there have been no hypotheses made regarding the role of multiple frames of reference and if comparisons do co-exist, do the comparisons work simultaneously to produce outcomes? A further limitation with these theories (Table 2A.1) as a collective is the small number of outcomes which have been examined or hypothesised to result from social comparisons. For example, do outcomes differ if an individual compares with a similar or dissimilar other? At present assimilation and contrast are commonly proposed as outcomes in theoretical studies of social comparison in addition to well-being (Wills, 1981) and self-concept (e.g. Marsh & Hau, 2003). Other outcomes, however, have received less attention in theoretical based studies and development of theory regarding social comparison processes.

One of the major limitations of social comparison theories as a group which includes Festinger (1954), concerns the lack of theory which attempts to link all the different aspects of social comparison together. For example, does an individual's motive predict frame of reference choice which in turn predicts an outcome? To date, theory has not yet attempted to link these parts of the comparison process together and investigate how these relationships might inter-relate. Finally, none of the aforementioned theories consider how social comparison behaviours may develop or change with age and as such provide theories which are generally concerned with adult samples (excluding the BFLPE) rather than those experienced by young people.

In summary the theories available at present provide an enhanced understanding of social comparison processes, but still leave many questions unanswered. In order to critique Festinger's (1954) hypotheses and examine how researchers *have* tried to test and extend knowledge based on these ideas, the following sub-sections focus on motives, frames of references and consequences of comparison. These sections detail research which may be theoretically driven, but has not been associated with a specific theory at the present time.

Motives for comparison

Although Festinger (1954) originally proposed that humans are driven to socially compare as a result of a motivation to evaluate their opinions and abilities, researchers such as Wheeler (1966) and Wood (1989) have suggested that social comparison may also be motivated by a desire to self-improve, self-enhance and self-validate. The following sub-sections provide a discussion and critique of research and understanding concerning knowledge of both adult and child/adolescent motives for comparison, with the focus, where possible, being on adolescent motives. The discussion provided is not extensive, but a brief

overview of motive research. An extensive review and information concerning adolescent/child motives is held elsewhere (Dijkstra, Kuyper, Buunk, Van der Werf, and Van der Zee, 2008). Furthermore, there is currently no research with directly examines adolescent motives for comparison in physical education, which means that the following critique uses knowledge from other areas of psychology to inform the discussion.

Self-evaluation is the desire to compare in order to evaluate one's own capabilities or ability to perform a task that another individual has completed (Festinger, 1954). Evaluation has been demonstrated as a motive for comparison in adult samples (e.g. Helgeson & Mickleson, 1995) and child samples (Rhodes & Brickman, 2008). However, as Dijkstra et al. (2008) conclude, there is a debate in the literature concerning the age at which children begin to use social comparison information as a source for self-evaluation. For example, Frey and Ruble (1985) asked children why they compared with others. First graders reported that it was to find out the correct answers, whereas fourth graders reported using it to evaluate their own performances. This suggests that as children age, their motives for comparison may develop with different desires. For example, a younger child might be more interested in having fun, whereas an older child might be more interested in learning how to complete a task or how good they are compared to others at a task.

Most of the research concerning motives for comparison was published many years ago, and this reflects a general lack of focus within social comparison research in examining the motives people and more specifically children/adolescents have for engaging in social comparison. More recently, however, Rhodes and Brickman (2008) have demonstrated that four to five year olds are capable of using social comparison information to self-evaluate and regulate their behaviour. This study focused on the effect of upward comparisons with distinct social categories and additionally highlighted the use of across sex comparisons by young children, and how these can potentially have long lasting negative consequences for children. The children in Rhodes and Brickman's (2008) study, however, were 'forced' into making social comparisons with unseen others, so it is unclear whether the children would have wanted to engage in such comparisons if they had not have been asked questions which made them compare with others. Future research, therefore, needs to address whether children and young people engage implicitly in social comparisons for self-evaluation reasons at a young age or if this desire is activated when they are asked specifically to compare and additionally, if this motive to compare develops and becomes more prominent as children age.

Self-validation assumes that an individual holds a specific view about his/her abilities

and opinions, and that he/she will subsequently seek information to confirm or validate these opinions about the self (Hoorens, 1993). This motive for social comparison has received little attention generally within the literature and, therefore, has little research associated with it. However, this could be a motive for comparison that adolescents possess if for example he/she wants to validate his/her ability in physical education.

Although Festinger (1954) proposed that individuals possess a drive to improve, this was not suggested as a motive for engaging in social comparison. This lack of support for self-improvement as a standalone motive for comparison has subsequently been shown by authors such as Gibbons and Buunk (1999) who suggested that it can be subsumed by the self-evaluation motive. Other authors, however, such as Wood (1989) and Hoorens (1993) have supported the notion that individuals can be motivated to socially compare by a desire to self-improve. This process will see the individual comparing with another in order to obtain information needed to improve. Wood (1989) additionally suggests that this improvement motive is supported by research in achievement motivation and observational learning. Butler (1992) provides further support for self-improvement as a motive for engaging in social comparison. This research involved children (aged 5-10) and suggests that social comparison was motivated to aid mastery-goal development. i.e. mastery goals or a desire to improve was the reason for engaging in social comparisons. However, this research was carried out with young children and as Butler and Ruzany (1993) found an 'age-related' shift in comparison goals between 5 and 10 year olds, it is possible, therefore, that comparison goals may change at older ages such as in adolescence. Also, given that school and physical education is an achievement setting where task/mastery-focused goals can be pursued, it would seem plausible to suggest that self-improvement may be one of the motives which drives social comparison in this setting.

Self-enhancement is the desire to enhance one's self-esteem, or maintain a favourable view of oneself through the use of social comparison (Wood, 1989). Wheeler (1966) provided evidence of a self-enhancement motive for social comparison where he investigated choice of target comparison after providing false feedback to participants about their performance. The results indicated that 87% of the participants preferred comparing upward and that 75% of those engaging in such as comparison assumed that they were more similar to the superior target than the inferior one. This motive suggests a completely different reason for engaging in social comparisons to self-evaluation and improvement as it proposes that people compare in order to maintain or improve their opinions and beliefs about themselves rather than seeking to evaluate or improve. There is a growing body of research which

suggests that people hold views of themselves which are not accurate (see the better than average effect; Alicke & Govorun, 2005) and that individuals may wish to maintain inaccurate perceptions in order to sustain positive feelings about the self (Wood, 1989). Again, this motive for social comparison has been somewhat overlooked in the literature investigating social comparison in the school environment, particularly physical education. Dijkstra et al. (2008) suggest that Butler's (1992) work on goals of social comparison is the closest to investigating this motive within a children's age group. The review (Dijkstra et al. 2008) suggests that performance-evaluation goals reflect a desire to gain positive judgments about the self; however, research examining this motive for comparison within secondary school children is necessary if we are to find out if this motive is an active driver for comparison in adolescence and additionally if motives for comparison do indeed change with age as Dijkstra et al. (2008) review suggests.

More recently, Lubbers, Kuyper and Van der Werf (2009) in an investigation of the role of friendship in social comparison identified that young people would often choose the best person in class to compare with. This could reflect a self-improvement motive behind the social comparisons rather than an evaluative reason for engaging in social comparisons with a specific other, however, research concerning links between motives and target choice have yet to be investigated. Additionally, Skaalvik and Skaalvik (2002) proposed that individual comparisons may result from a more active interest in social comparison. It could be, therefore, that a desire to self-improve might be linked with comparisons with the best person in the class or self-enhancement with the worst person present. These are, however, hypotheses as there is currently no research to date which has examined such propositions.

Although various limitations have already been mentioned in relation to each motive - namely a lack of research concerning adolescents and no research within a physical activity setting such as physical education that examine social comparison motives specifically – there are four further limitations which should be noted. Firstly, as Wood (1989) suggested, there are no investigations which examine the role that different motives might play within the comparison process. Secondly, there is yet to be any investigation of the association between motives and outcomes of comparison not defined in theory such as assimilation and contrast. Thirdly, the research does not yet provide knowledge concerning whether the motive for comparison will influence the target chosen and finally research has yet to provide any knowledge on whether the motive for comparison is dependent upon individual characteristics such as value or importance of an activity. These limitations when considered together demonstrate the need to study adolescents' motives not only in a physical setting

such as physical education, but also more broadly so that knowledge is generated concerning social comparison motives in general.

Frames of Reference

The comparison standard with which an individual compares is also known as the frame of reference, comparison other/others or target. Festinger (1954) proposed that only in absence of objective information (e.g. grade) will 'others' (people/subjective standards) be utilised for comparison. Exact details of who this other might be, however, are not provided by Festinger (1954) only a reference to the notion that 'similarity' could be a key component involved in target choice is provided. Research examining frames of reference within psychology has proposed that targets may be forced (the comparer is asked to compare with a target for example a partner in class/the class itself) or chosen (the comparer chooses the target). Furthermore, there is a growing body of evidence which examines the relative influence of different frames of reference in determining outcomes (e.g. Buckingham & Alicke, 2002; Locke, 2007). Within these studies targets are defined as generalised or specific/individual with the finding that the generalised other (e.g. the class) is more influential in determining outcomes than an individual. Locke (2007) suggests that the generalised other is more influential because it provides a much wider evaluation of the characteristic under comparison, or a more accurate evaluation than comparisons with just one other person. However, the findings from Buckingham and Alicke (2002) also suggest that an individual or co-actor may be able to moderate the impact of generalised comparisons. Similar findings to this have been noted in research already existing within physical education, where the class has been shown to be more influential in predicting outcomes than comparisons with an individual (e.g. Chanal & Sarrazin, 2007).

Additionally, there have been various research studies assessing frames of reference within the classroom context (e.g. Schwarzer, Jerusalem & Lange, 1983 & Skaalvik, 1997). Skaalvik and Skaalvik (2002) provide a review and summary of this evidence and conclude that there are four external frames of reference which may be used and involved in the development and maintenance of academic self-concept. Although these are noted in relation to self-concept, these frames do provide a starting point - in conjunction with previous research in physical education - for discussing and investigating adolescent frames of reference. The four external frames of reference detailed by Skaalvik and Skaalvik (2002) are, school-average ability, class average ability, selected students in class and selected students outside of class. The broadness of the frames i.e. both within the class and external to it, is not surprising given the hierarchical and multi-influenced nature of self-concept.

However, it is possible that all of these are used by adolescents in physical education, but there is yet to be an investigation of this proposition.

External comparisons are those which require a comparison standard which is not oneself. For example, did I do better than a friend? Or, did I get a good grade compared to my class? In contrast, internal comparisons[2] - which are not a focus of this thesis - are concerned with comparisons with oneself for example, did I perform that task better last time I attempted it or this time? According to Marsh, Byrne and Shavelson (1988) external comparisons are those made when students compare their self-perceived achievements, with their perceptions of others attainments and use this comparative analysis as a basis for forming an academic self-concept. Skaalvik and Skaalvik (2002) build on this proposition to suggest that individuals make performance comparisons with either specific individuals or groups of others. In addition to this the authors propose that the school and class are imposed or forced comparisons groups, whereas comparisons with individuals are thought to be more active targets, i.e. that the target would be chosen by the comparer for a particular reason. In physical education, however, it is possible that comparisons with individuals may also be 'forced' upon a student if they are asked to compare with a classmate who is a partner during a particular activity in class.

School average ability is a generalised frame of reference which has been investigated by Marsh, Trautwein, Lüdtke and Köller (2008a) as a predictor of academic self-concept. Furthermore, as Marsh et al., (2008b) suggest, it is a generalised comparison standard which is consistent with general models of frames of reference, within other strands of psychology such as social psychology (Sherif & Sherif, 1969). School average ability has, so far, been researched by assessing grade levels attained by schools. This has led to the predominant use of quantitative methods (for example Seaton, Marsh & Craven, 2010) with researchers relying upon statistics and modelling to further knowledge and understanding concerning this frame of reference. Consequently, there is a dearth of qualitative research which could provide new and deeper insights and understanding of if and how school average ability may affect children's self-concept and other dependent variables. Furthermore, comparisons with generalised frames of reference such as the school average may be implicit and sub-conscious and individuals may, therefore, not be able to articulate these comparisons, even if effects of them are demonstrated through quantitative research. Qualitative research, however, which

[2] Internal comparison standards are also discussed by Skaalvik & Skaalvik (2002), however, these are not the focus of this thesis and readers are directed to the aforementioned paper for a review of these frames of reference.

investigates adolescent experiences and conscious awareness of social comparisons, is needed so that distinctions between implicit (subconscious) and explicit (conscious) comparisons can be made. Additionally, future research could then assess whether implicit or explicit comparisons are more influential in determining different outcomes.

The class is a frame of reference which can and has been both objectively and subjectively investigated. Objectively, Marsh & Hau (2003) utilise grade point scores to create a class average, whereas researchers such as Huguet, Monteil, and Genestoux (2001) have measured ability within the class subjectively by asking children to rate their ability compared to most of their classmates. Additionally, Zell and Alicke (2009) investigated the effect of inter and intra group comparisons. Through the use of multiple studies it was found that although individuals may recognise a wide context for comparison, they still continue to use a small sample with which they evaluate their abilities. This could indicate why the class, a small sample compared to a school for example, is a more dominant frame of reference than the school. Within physical education, the class as a comparison standard has been investigated both objectively and subjectively (Chanal, Marsh, Sarrazin & Bois, 2005; Chanal & Sarrazin, 2007; Trautwein, Gerlach, & Lüdkte, 2008) and in doing so has demonstrated that perceived and actual ability within one's class are both important predictors of outcomes such as physical self-concept (other outcomes in physical education are detailed in Chapter IIB).

Narrowing the breadth of comparison standard further, individuals provide many targets and opportunities for comparison. How or why these targets are selected, however, remains relatively unknown, however, there is some research detailing the role that similarity might play in determining target choice. Festinger (1954) initially proposed that similarity was involved in comparison target choice and Goethals and Darley (1977) have further defined this hypothesis concerning attributes under comparison. Given that the school environment stresses achievement and certain attributes as important, it is possible to suggest that similarity may be a factor in determining individual target choice. Although not a direct examination of target choice, research by Duquin in a sporting situation (1980a; 1980b; 1986) supports this proposition of the importance of similarity in comparison. In these experiments, the role of similarity in ability and sex in relation to social comparison and interaction with others was investigated. These studies found that players would prefer to interact with those who were of similar ability, but this was the case only when the situation was non-competitive or non-threatening. This demonstrates that young people will choose similar targets for comparison, but that the circumstances surrounding the comparison may influence

who is chosen, Furthermore, these studies demonstrated that young people are able to choose who they wish to compare with in physical activity settings, but these findings are only available in less than a handful of studies and require further examination and replication. Future research is, therefore, needed to further examine the role of similarity in target choice.

Skaalvik and Skaalvik (2002) proposed that siblings and friends who are not within the same class as an individual/the comparer, are chosen as comparison standards because of the relationship to the comparer. Comparisons with those outside of the class have not been the focus of research within the school context and there is, therefore, little specific evidence to support or contradict the use of this frame of reference in the classroom environment. Given the pervasiveness of sport throughout everyday life, however, comparisons with individuals outside of the class could potentially be a fruitful avenue for investigation in relation to ability evaluations within physical education. Furthermore, many adolescents attend sports clubs outside of school, engage in sport at lunch time and are involved with physical activity through playing inter-house competitions whilst at school. All of these contexts give children ample opportunity to engage in social comparison about their abilities in physical activities outside of the physical education class.

The final external frame of reference which Skaalvik and Skaalvik (2002) proposed was selected students within the class. These may be individuals or groups of individuals within a class who are selected by the comparer as a standard for comparison. There is evidence to support the use of both individuals and small groups within physical education (Chanal et al., 2005; Chanal & Sarrazin, 2007) where studies have shown that young people actively choose to compare with certain individuals within their classes. Who individuals will choose remains largely debated within the literature in terms of whether better (upward comparison) or worse (downward comparison) targets will be chosen, however, there is another body of research developing which suggests that friendship and proximity (location within a classroom) may also influence comparison choice (Lubbers et al., 2009; Meisel & Blumberg,1990).

Meisel and Blumberg (1990) investigated the relationship between friendship and choice of comparison target and found that half of the targets chosen for comparison were friends. In addition to this, Lubbers et al. (2009) explored the use of friends as comparison targets within academic subjects. Their results showed that when a friend (reciprocated friendships) was present, 78% of the students who had at least one friend in the classroom picked a friend as a social comparison target, 17% chose a classmate with whom there was some liking, and 5% chose a non-friend. The authors gave participants the option of ticking

various responses detailing why they chose the targets in addition to an ‘other’ option where children could enter why they chose that person. The reasons for choosing a friend and non-friend were different. For a friend, responses revolved around liking of the target, whereas with a non-friend reasons such as good student or best in the class were given. Additionally the study provides evidence that proximity as well as friendship may influence comparison behaviour, where 69% of the reasons given for comparison were that the target was a friend and that they sat next to the comparer in class.

Finally, the best person present was also indicated as a comparison standard (Lubbers et al., 2009). Skaalvik and Skaalvik (2002) proposed that individual comparisons may result from a more active interest in social comparison. It could be, therefore, that the best person present is a target that other members of the class aspire to be like, and, therefore are used as a source of comparison for many individuals. This person may represent a desired outcome or ability level and comparisons with the best person present may, therefore, provide information on how to attain that higher level of ability. There is no research to date, which examines whether the best person present is used as a frame of reference in physical education. Although Lubbers et al. (2009) provide insight into friendship there are several limitations which warrant discussion. The first limitation is that participants were asked to check a box detailing why they compared with a comparison other. Ticking a box, she/he is my friend, may be more socially desirable than ticking he/she performs worse than me, which may have skewed the results towards friendship as a driver rather than ability level. Secondly, it is not possible to determine if friendship caused individuals to sit in certain places, and then due to proximity friends were chosen for comparison, or if friends were chosen for comparison regardless of the seating arrangement in the class. Other limitations to this study are discussed within the paper, but finally in relation to this thesis, the authors looked specifically at comparing grades and also academic subjects and did not examine physical education. Proximity as an important predictor of target choice, in physical education may be irrelevant because all students can easily see a classmate’s ability rather than in academic subjects where individuals are more likely to only be able to see the progress of those sitting next to them.

In addition to the limitations regarding frames of reference which have already been provided, there are several others which warrant attention in the context of this thesis. One such limitation is the general focus in the literature on either the school or class average ability with less attention given to comparisons with specific individuals both within and outside of the class who may play an important role in the comparison process. Another

limitation is that the majority of research has focused on the frames of reference related to self-concept. This means that our understanding of the importance and influence of frames of reference is biased towards those involved in predicting self-concept. Research is, therefore, needed to examine if different frames of reference are important when other dependent variables are under investigation. Finally at present there is very little evidence detailing if age and sex are important in determining choice of target or the outcome of comparison with a particular target.

To summarise, there are many gaps in our knowledge concerning adolescent frames of reference. Within physical education, the class, individuals and small groups have dominated as the frames of reference investigated. The research does not, however, examine exactly who these individuals are in physical education. For example, are individual targets friends or the best person present in the class? Furthermore, there is yet to be any investigation into whether individuals outside of the class are used as comparison standards in physical education or other academic subjects. Hence there are many questions that remain unanswered concerning frames of reference, which would, if researched, provide useful information for physical education teachers and policy makers. For example, do adolescents compare with multiple frames of reference? Is one particular frame of reference more influential than another? Research which continues to explore adolescent frames of reference is essential; not only to try and gain a more holistic view of comparison processes within a given subject for example, but also to assess which frames of reference may have the greatest influence on feelings, thoughts and behaviours. As Marsh et al. (2008a) summarise, there may be multiple frames of reference in use at any one time and research is needed to examine how these may interact to influence outcomes. This highlights the need for further researching examining different frames of reference used both within the school context and in psychology/life more generally.

Consequences of Social Comparison

Perhaps arguably the most important aspect of social comparison processes is the outcomes which arise from comparing with others. As discussed in relation to theory earlier in the chapter, assimilation, contrast and self-concept have been used as the key outcomes of social comparison around which theories have been developed. There is a growing body of literature, however, which suggests that there may be many other outcomes which are affected by social comparisons. These can be split broadly into three categories: behavioural, affective and cognitive. In order to understand these consequences and how comparisons may tie to an outcome a discussion of the 'direction of comparison' is needed. Furthermore,

although sex of the target and comparer has briefly been touched upon (p. 16) a brief discussion concerning the knowledge of the role of sex in comparison is also given before moving on to discuss the current knowledge base of consequences of comparison. The following three sections concentrate upon research investigating adolescents and children within the school environment, as this relates directly to the subject of this thesis.

Direction of comparison.

Direction of comparison refers to the objective or subjective level of possession of a characteristic under comparison. Downward comparison would refer to one where the comparer is better or possesses more ability than the target, a lateral comparison where the two are considered equal in ability or the characteristic under comparison and an upward comparison, where the target is objectively or subjectively seen as more able (possesses more of the desired characteristic) than the comparer.[3] This direction is an important part of understanding outcomes of comparison and is inherently linked to outcomes in research which assesses consequences even if it is not explicitly discussed in these studies. Direction of comparison can be both objectively and subjectively measured which may provide different insights into comparison. For example, Wheeler and Suls (2007) demonstrated that for most comparisons which have been claimed as lateral, objective differences in ability have not been measured and therefore it is not possible to determine if these comparisons are lateral or in fact slightly upward as Wheeler and Suls (2007) suggest. Although this challenge to lateral comparisons has been made, there is not substantive evidence to argue either for or against it at present and future research is, therefore, needed to examine this area further.

The role of sex in the outcome of comparison.

Research concerning sex and comparison outcomes is limited in adolescent and child populations, with research such as that by Duquin (1986) focusing on similarity and sex, rather than the role that sex itself might play in determining target choice and outcomes of comparison. There is one study (Rhodes & Brickman, 2008) however, which suggests that whilst children will compare with both sexes, there can be long lasting negative consequences of comparing with a more able target of the opposite sex. Although there are limitations to this study, it highlights the need for a continued investigation of the effect of cross gender comparisons across all ages and that comparisons may have both long and short term effects on individuals. To my knowledge, there have not yet been any studies to date in physical

[3] If the characteristic under question was a negative one for example incompetence, then an upward comparison would be with an individual who possessed less of that quality and a downward comparison with someone that possessed more of that quality. For the purposes of this thesis, which focuses on ability, however, upward refers to a more able individual, lateral the same ability and downward to a less able target.

education which have attempted to assess the long term effects of cross sex social comparisons in physical education. This could be an interesting avenue for future research, particularly if cross sex comparisons for example could be shown to have long term negative consequences. Evidence such as this could provide support for or against single versus mixed sex physical education lessons.

Affective responses to social comparison.

Understanding affective responses to social comparisons is a task for researchers wishing to enhance positive responses and decrease negative outcomes. Within physical education there is no research which examines affective responses to social comparisons. This means that the following section draws upon evidence from other areas of psychology in order to discuss and examine knowledge in this area and propose future research directions and hypotheses. Smith (2000) and Buunk, Kuyper and Van der Zee (2005) have both proposed models for the affective responses to social comparison within the classroom. The authors suggest twelve and eight affective responses respectively. Buunk et al. (2005) propose that the reaction will depend upon: the direction of the comparison engaged in (upward/target is more able or downward/target is less able); the framing[4] of the direction and the focus (for the self or for the other) of the outcome of the comparison. This model provides various hypotheses that researchers can test; however, it does not include the impact that 'others' might have on the comparison. Smith (2000) in contrast, included others and in doing so included a dual focus distinction for reactions to social comparison which included inspiration, envy, sympathy and schadenfreude (feeling good when something bad or unfortunate happens to someone else). This is why Smith (2000) proposes twelve responses and Buunk et al. (2005) only eight.

Wehrens et al. (2010) have provided a recent examination of these models when they investigated the affective response to social comparison and academic performance in high school students. Wehrens et al. (2010) found evidence for Smith's (2000) affective responses and furthermore through principal component factor analysis produced three overarching factors; empathetic; constructive and destructive. Each of these factors included reactions to both downward and upward comparisons. Responses where both the outcome for the target and identification was noted were categorised as empathetic. Sympathy, concern for the target and happiness for the target when they had outperformed the comparer would fall under this factor. In contrast, responses which were self-focused and concerned with one's

[4] Framing refers to whether the individual contrasts or identifies (assimilation) with the comparison level. The model suggests that upward and downward comparisons can be paired with contrast or identification.

own improvement were categorised under the constructive factor. The authors propose that the responses to comparison were based on identification and contrast, where hope and optimism were found if identification occurred and pride and shame resulted from contrasting comparisons. For the destructive factor, the responses tended to be contrast orientated and were both self and dual focused. Feelings categorised under this factor were schadenfreude and envy (Wehrens et al., 2010). These results suggest that affective responses to social comparison are influenced by both the focus and framing of social comparisons, however, direction may in the case of affect play a less influential role in determining the outcome.

The authors then try to associate the three factors with academic performance. The results indicate that participants who reported higher destructive scores, performed worse on reading and maths measures than those who reported lower scores for this factor. Wehrens et al. (2010) suggest that these negative feelings in response to social comparison may lead to feelings of frustration and lack of ambition. For constructive responses, no relationship was found between this and performance. The constructive factor did, however, affect the relationship between destructive responses and performance whereby those who engaged in high levels of constructive as well as destructive responses were more likely to perform better than those who reported high levels of destructive responses and low levels of constructive responses. These findings suggest that multiple affective responses to social comparison may occur simultaneously and, therefore, researchers must seek to simultaneously investigate multiple affective responses to progress understanding of this area. This study provides new insight into affective responses to social comparison and hypotheses which can now be tested in future research. There are, however, a few limitations which should be considered when deciding how to approach this area in the future. The first is that the authors used affective responses as predictors of performance, whereas the direction of the relationship could in fact be the reverse. Secondly, the effect sizes found for the study were small even though the sample size was large. Thirdly, the affective responses were rated in relation to comparison of grade. Research examining the outcomes of comparing ability and other characteristics is, therefore, needed to determine if the affective responses are the same as grade comparisons.

In summary, the research concerning affective responses to comparison in the school environment is still in its infancy and future research is needed to attain a deeper and holistic understanding of affective reactions to comparisons. Although previous research suggests that discrete responses result from comparison, future research investigating whether a generalised sense of affect also occurs is needed, particularly if multiple effects of comparison can interact to produce an overall feeling of affect.

Cognitive responses to social comparison.

It appears from reviewing the literature that the 'cognitive' outcomes from social comparison have been the most widely researched. This is, however, an illusion because the majority of research within the school context has focused primarily on academic self-concept and utilised the big-fish-little-pond effect (BFLPE; e.g. Marsh & Hau, 2003; Marsh & Parker, 1984; Seaton et al., 2010) as the theoretical basis for investigation.

It is now widely accepted that a person's self-concept is multidimensional (Marsh & Shavelson, 1985) with academic, social, emotional and physical components combining to form a general self-concept. These components can be sub-categorised into lower level categories, for example physical self-concept would be split into physical ability and physical appearance. Marsh and Craven (2006) suggest that these sub-categories are then further divided into other components which are even more domain-specific to the four higher level concepts. Additionally there is a suggestion that evaluating behaviours in specific situations or engaging in social comparisons within specific situations can affect the development of these different aspects of the general self-concept. For example, comparing one's skill at hitting a hockey ball, would have specific effects on the physical self-concept rather than an effect on the academic, or emotional concept elements. Academic self-concept has been the focus of social comparison research in the school environment - however, there are only a few studies which have investigated physical self-concept as an outcome. These studies which examine physical self-concept are presented in detail in Chapter IIB (pp. 37-38) and as such are not discussed in detail here. To summarise briefly, similar to academic self-concept, the BFLPE has dominated the studies in physical education and shown that physical self-concept for two equally able students, will be lower in a high average ability class than an individual in a heterogeneous class.

In summary, self-concept has been the main cognitive outcome researched in conjunction with social comparison in the school environment with numerous studies conducted in academic subjects across the world (Marsh & Hau, 2003; Marsh et al., 2008a Seaton et al., 2010). More specifically, physical self-concept has been investigated in physical education a few times, but these findings need further replication before firm conclusions can be drawn.

Behavioural responses to social comparison.

Research investigating behavioural response to social comparison in physical education is in short supply. At present, engagement in physical activity outside of the lesson is the only behavioural consequence that has been investigated within physical education

(Trautwein et al., 2008). The following section, therefore, draws upon research from the school context in general and psychology more widely to provide a review of literature within this area.

Dijkstra et al. (2008) review in detail the many studies which have examined the behavioural consequences of social comparison within the classroom. It is clear that the main focus of research in this context has been assessing impact on performance. For example Epstein (1983) found that both low and high achieving pupils who had high achieving friends performed better a year later than similar students who had low achieving friends. Altermatt and Pomerantz (2005) demonstrated an improvement in grades for students who compared with a higher achieving friend than those who compared with a lower achieving friend. The suggestion from both of these studies is that social comparison with high achieving friends has had a positive effect on performance levels. Again however, the process underlying this increase in performance is not examined. It could be for example that the high achieving friend is helping the pupil in class to understand the subject better and this leads to an increase in grade.

Although most research in the academic domain has focused on performance, Yperen, Brenninkmeijer and Buunk (2006) investigated effort and comparison with others in physical education teachers. In this particular study, the authors were interested in teacher responses to upward and downward comparisons through effort-performance expectancy. The results from the study suggest that when exposed to a higher performing other, more adaptive consequences were reported than when a teacher is exposed to an inferior other. Furthermore, if a superior target was deemed to have performed better as a result of higher effort, and an inferior target worse due to less effort, then this increased participant's intentions to work harder at their own jobs. This suggests that humans are able to compare both the effort put in by themselves and others which may then subsequently influence their own effort levels. Although this study examined teacher experiences rather than children or adolescents, there is the possibility that similar effects concerning effort and social comparisons may be found in young people. Understanding reactions to social comparisons, and finding out if increased effort is a positive outcome that may result from comparison, could provide useful information for both physical education teachers and individuals working with young people in the future.

In addition, there is some evidence (Pettit & Lount, 2010) to suggest that people may work harder when their performance is compared to someone from an out-group whose perceived status is lower. This study highlights the need to look at the effects of social

comparison of both members from within groups to those outside of classes for example. This idea relates to the fourth external frame of reference mentioned earlier (individuals outside of the class). The difference here, however, is that the comparison target was a member of an out-group, rather than someone who had a close relationship with the comparer (Pettit & Lount, 2010). Additionally, Santrock and Ross (1975) when measuring task perseverance on a puzzle task identified that the children who perceived themselves to be doing worse than the other children, because they were given less rewards during the task, paid less attention and reported lower self-confidence, but showed higher levels of perseverance. This demonstrates both the positive and negative influence of comparisons where attention and confidence decreased, but perseverance increased. This effect of social comparison of reward on task perseverance may be key to understanding why some children succeed where others fail at difficult tasks across all areas of life, and as such warrants further research attention. Understanding if social comparisons play a role in task perseverance within physical education could help teachers arrange activities so adolescents make comparisons that lead to perseverance rather than disengagement in class or reduced effort.

Another behavioural outcome which is particularly relevant to the school context and adolescents is that of misbehaviour. Khoo and Oakes (2003) demonstrated the negative impact that social comparison may have on behaviour. This is at present, the only study to examine misbehaviour as an outcome of social comparison and demonstrates a need to replicate these findings both within the same context and within other environments such as physical education.

In summary, the literature on the consequences of social comparison for adolescents and young people is not extensive. There has been no research to date which has tried to understand the consequences of comparison from a young person's perspective with research being adult and researcher focused. There are many avenues for future research which need to be explored in order to develop knowledge and understanding for not only researchers, but also individuals who work with young people every day. Research assessing affective, cognitive and behavioural outcomes of social comparison requires attention given that conclusions regarding self-concept only are presently available from the literature.

Summary

This chapter provides a background review of research investigating social comparison processes that young people use. It has drawn upon research from both investigations of adults and young people. The chapter has critiqued several social comparison theories, examined the evidence base regarding motives for comparison, frames

of reference and outcomes of comparison whilst providing several avenues for future research. This literature review has shown three major gaps in social comparison knowledge regarding adolescents. Firstly, that there is virtually no research into adolescent motives. Secondly, that the class has been the main frame of reference used in social comparison research almost to the exclusion of all other frames of reference, and thirdly, that self-concept has been central outcome research with very little investigation of the effects of social comparisons on other important developmental/educational outcomes.

One context which provides an enormous opportunity for understanding social comparison processes in a naturalistic setting and then being able to act upon the findings to enact change and improve circumstances for individuals is physical education. This setting has particular contextual components such as the availability and immediacy of comparison which are not present in other settings such as academic subjects where pupils may have to wait for test results or for another measurement point in order to compare their ability with the rest of their class. Understanding the role that motives for comparison and frames of reference play in determining important educational outcomes in physical education is essential for researchers wishing to provide solutions or intervention ideas for teachers and researchers alike so that short, medium and long term benefits for individuals can be realised. Short term benefits may include higher levels of engagement in class with medium to long term benefits including higher levels of physical activity participation, physical self-concept and positive affect. These outcomes may in turn lead to lower levels of obesity and public spend on health issues associated with a lack of physical activity participation.

In order to provide an overview of the literature which exists in physical education, a systematic examination of studies within physical education was conducted. This review is detailed in the next chapter IIB which provides a critique of research only in physical education, and includes a section detailing the rationales for the four empirical studies which form the remainder of this thesis.

Chapter II

Part B

A Systematic Review of Social Comparison Research in Physical Education

Abstract

This systematic review was conducted in order to identify, evaluate and summarise the findings of studies investigating social comparison processes in physical education. Five papers all published in the English-language were identified using electronic searches of seven databases and by manually searching reference lists and personal files. Studies included in the review researched young people aged 3 – 18 years, were cross-sectional, longitudinal or field studies, grounded in social comparison and investigated physical education. The papers included were generally diverse and as such, led to the undertaking of a narrative synthesis in order to collate and critique the studies as a collective. The 'class' was the frame of reference most frequently researched with physical self-concept dominating as the main dependant variable. The synthesis led to the proposition of multiple recommendations for future research which if undertaken could help enhance understanding of social comparison processes in physical education.

Keywords: school, child, physical self-concept, social comparison, physical education, frame of reference

Introduction

To assess their capabilities and opinions, humans engage in social comparisons with both objective and subjective comparison targets (Festinger, 1954; Klein, 1997; 2003). These comparison targets provide information which individuals can use to assess if a certain outcome is achievable. Furthermore, research has shown that individuals not only compare to evaluate their abilities, but also to self-improve and to self-enhance (Helgeson & Mickleson, 1995; Wood, 1989). Since the inception of Festinger's (1954) theory of social comparison processes, researchers have sought to test these hypotheses and also develop their own theories regarding how these processes may occur. Theories such as the selective accessibility model (Mussweiler & Strack, 1999) and the related attributes hypothesis (Goethals & Darley, 1977) are two such theories which have shown respectively that, individuals tend to use information which is readily available to them i.e. a similar target repeatedly, and that individuals will choose to compare with people who they believe they are similar to them on characteristics predictive of the evaluated quality, i.e. which possess similar attributes.

Although there has been a wealth of research investigating these theories and many of Festinger's (1954) hypotheses, the majority of this research has involved adult participants and leaves a gap in our knowledge surrounding the effects of social comparison on young people or how social comparisons are used by this population. Researching children's and adolescent's experiences of social comparison is important, not only because of the outcomes it may be associated with (Khoo & Oakes, 2003), but also because Butler (1992) found that comparison motives develop and change as children grow up. This suggests that children's comparison behaviour changes whilst they develop and as such may be related to developmental changes and formation of long lasting perceptions such as academic self-concept (for reviews, Marsh & Craven, 2006; Seaton et al., 2010; Valentine, DuBois, & Cooper, 2004).

A summary of the evidence concerning children's social comparisons in the classroom has been provided by Dijkstra et al., (2008). The authors reviewed research investigating social comparison in the classroom from 1954 until 2007 providing a themed summary of the evidence. There was, however, no attempt to assess the magnitude of effects of social comparison in the classroom and physical education was only considered briefly within the review. This review highlighted the lack of research addressing children's motives for comparison, the consequences of comparison, in addition to looking only very briefly as social comparison in physical education (PE), leaving a lack of clarity for those interested in

more physical domains. Given that academic classroom settings are more structured than physical education and that ability is on show to the rest of the class in physical education in a different way to academic subjects, it is likely that social comparison targets will be more readily available for comparison than in academic lessons where ability is less 'on show'. This may mean that the consequences of comparison in PE are exacerbated compared to academic subjects. Given that PE is an influential and informative learning environment where children develop their physical skills, it seems important that researchers use this comparison rich environment for investigating and evaluating the effects of social comparison. In order to provide a structured and up to date account of, and basis from which researchers can work, a systematic review was conducted.

A systematic review was chosen for various reasons. Firstly, there were a number of studies identified by Dijkstra et al. (2008) which primarily focused on the classroom, however, no 'physical' terms were used in the search strategy and it was, therefore thought that several studies involving physical education may have been missed in Dijkstra et al.'s (2008) review. Secondly, social comparison has many theories associated with it and consequently there could be numerous studies in PE using these different theories. Thirdly, it allowed a systematic approach to searching and so provided a structured method for searching for the literature on social comparison and PE.

The purpose of this systematic review was, therefore, to identify, evaluate and summarise the findings of social comparison research in physical education. The review focused on school aged children (aged 3 – 18) and included studies which investigate physical education only.[5]

Method

This review adhered to the systematic review guidance provided by the NHS Centre for Reviews and Dissemination (2009). The narrative synthesis was informed by the guidance produced by the Economic and Social Research Council (Popay et al., 2006).

Literature Search and Inclusion Criteria

Seven electronic databases (ERIC; PubMed; Scopus; Medline; Psychinfo; Web of Science and SportDiscus) were searched using combinations of key terms. Key authors in the area were contacted for any papers that might be relevant or in press. Reference lists of included articles and review studies in related areas were screened using key words. In order

[5] General sporting contexts were not included because the focus was specifically on physical education. It was initially thought there would be many studies focusing just on physical education and there would, therefore, have been too many if sport was included as well. In hindsight, including sport may have been useful, given the small number of studies that resulted from this study, although this fact itself is an interesting finding.

to complete a comprehensive broad review of the area, a wide range of search terms were used. The search terms for social comparison and physical education were combined to identify potentially relevant studies. The key terms used for social comparison were: social comparison; self-enhancement; upward; downward; better; worse; self-evaluation maintenance model; interpretation-comparison model; selective-accessibility model; big-fish-little-pond effect (BFLPE); assimilation; contrast; reflected glory; self-evaluation; self-improvement. The key terms for physical education were; physical education; fitness education; sport; games; school; class; lesson; physical activity.

Studies included in the review were required to meet several criteria as follows: investigate children aged 3 – 18 (or a mean within these ages); use a social comparison theory, or have social comparison/a specific frames of reference as a basis for investigation; assess at least one dependent variable; be based in a physical education lesson; have been published in a peer reviewed journal in the English language published before the end of April 2011. Studies assessing adults or children with disabilities were excluded.

Studies were screened against the inclusion criteria (Appendix A), first by title, then abstract and finally full papers were retrieved if inclusion was indeterminable by the title and abstract. If a study appeared to meet the inclusion criteria, the full paper was retrieved and assessed for inclusion. The literature searches identified 14649 articles which were potentially relevant, however, only five of these met all the inclusion criteria. Figure 2B.1 shows the study selection process in the form of a flow chart.

Data Extraction and Synthesis

A data extraction form (Appendix B) was developed and completed for each study included in this review. Extracted information included the authors, date, country of study, design of study, participant characteristics (age, gender, ethnicity, socio-economic status, sample size), measures and their reliabilities and validities if reported. Data was then transferred into a descriptive table (Table 2B.1).

A narrative synthesis (Popay et al., 2006) was undertaken because the studies identified for inclusion were diverse in many ways, including their methods and outcome measures. This narrative synthesis involved interpretation of the studies in addition to comparing and contrasting the studies to one another. Comparison was based on their sample characteristics, methods/research design, variables investigated and measures utilised and the theory used. Study quality was also assessed at this stage.

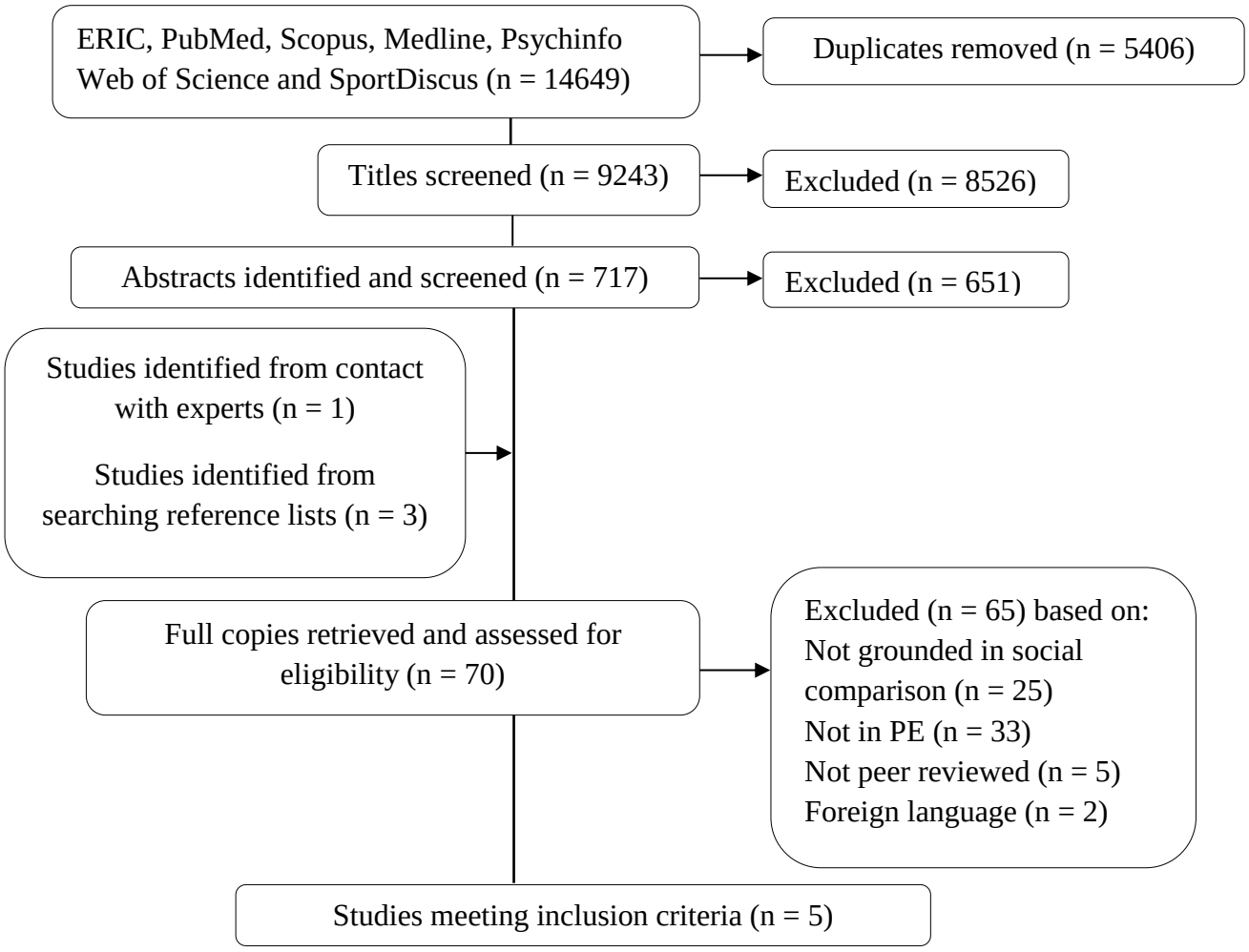

Figure 2B.1. Flow chart of literature search and identification of included studies.

Results

Study Characteristics and Study Findings

The inclusion criteria were met by five studies (Figure 2B.1). These included three longitudinal, one field experiment and one cross-sectional study. Origin of the studies was France (n=3), Germany (n=1) and the Netherlands (n=1). No studies were identified from originating within the UK. In all studies children participated in physical education at school, with one study (Chanal et al., 2005) focusing specifically on a 10 week gymnastics unit within the physical education curriculum. Four of the studies investigated children of approximately 13 years of age with only one study examining younger children (*M*age = 9.29 years). In most studies the number of boys and girls assessed was roughly even. Ethnicity data was only reported in one study. Children included within the studies were nested in classes within schools, in the majority of cases, with a range of 5 to 66 classes investigated. Data from these studies is available from the authors. Participants were recruited

Table 2B.1

Descriptive Summary of Included Studies Investigating Social Comparison in Physical Education

	Study	Sample	Setting/Design	Measures	IV	DV	Results
1	Chanal et al., 2005; (France)	N=405; CL =20 *M*age= 13.5yrs 210=B; 195=G.	PE (gymnastics) LO = 10 weeks.	IA assessed by 3 judges; 3 items for GSC.	CA; IA; Age; Sex	GSC	CA skills: Direct -tive effect T2 GSC. -tive effect of CA increased with time. IA: +tive effect on GD.
2	Chanal & Sarrazin 2007; (France)	N=357; CL = 19 *M*age= 13.4 85=B; 185=G; 15= NOD.	PE; CS.	6 items for PESC. IA rated by PE teacher & 2 trainees.	CA; ITL; SGL; IA; Sex	GD PESC	CA: –tive effect on PESC. SGL: + tively related to PESC & GD. IA: +tively related to PESC & +tively related to GD.
3	Kuyper & Dijkstra 2009; (ND)	N=588; S = 4; CL=11, 8,7,7. 1st yr secondary, comparable to Grade 7 USA; 265=B; 323=G.	PE; LO = 3 years.	Evaluations measured using single items on 5 point scale.	CA ability CA liking	LG AE	No sig. difference over 3 years of AE. Sig diff. for LG, but no sig. change for year 3. Correlations between comparative ability & comparative liking increased over years 1 and 2

Table 2B.1 continued

Descriptive Summary of Included Studies Investigating Social Comparison in Physical Education

	Study	Sample	Setting/Design	Measures	IV	DV	Results
4	Margas et al., 2006; (France)	N=118; S=5; CL=5 *M*age 12.35 HOG: 1S N=22; 14=B, 8=G; HTG: 4S-per school, 1CL with N=24 included, B=16, 8=G.	PE; LO = 1yr Children grouped into high (HOG) & low (HTG) ability.	0-100 for PE evaluation – measured using 'efficiency in PE'. Measured at 6 time points; status feeling induced for HOG group.	grouping HOG/HTG PES CSS SCAT PCS	PES SCAT	Sig. effect of grouping on PE self-evaluations from T0 to T6. Evolution of self-evaluation for 2 groups is sig. different. Sig. effect of grouping on PCS & SCAT.
5	Trautwein et al., 2008; (Germany)	N=1095; 22 schools; 66 classes; *M*age at T1= 9.29 *SD* 0.64.	PE; LO = 15 months.	IA measured by obstacle course; PSC 5 items; PA measured /day & summed for week.	CA ability IA GD	PSC PA GD	CA ability: –tively predicted GD, T1 PSC, T2 PSC & T1 PA. IA: = +tively predicted GD & T2 PSC.

Note. AE = ability evaluation; B = number of males; CA = class average; CL = number of classes included; CS= Cross sectional; CSS = class self –esteem; G = number of females; GD = PE grade; GSC = gymnastics self-concept; HOG= homogenous grouping; HTG = heterogeneous grouping; IA = individual ability; ITL = individual target level ; LG = Liking of PE; LO = longitudinal; N = number; ND = Netherlands; NOD = non-disclosed; PA = physical activity; PCS = perceived class status; PE = physical education; PES = PE self-evaluation; PESC = PE self-concept; PSC = physical self-concept; S = number of schools included; SCAT = self-categorisation; SGL = small group level; T1 = time point 1. T2 = time point 2.

as members of participant schools. None of the studies indicated following ethical guidelines and only one study reported contacting parents to gain consent for the children to take part. Given the small number of studies which met the inclusion criteria, the exclusion of those not written in the English language may have introduced bias into this review.

A variety of measures were used across included papers with no consistency in the measures chosen to assess similar concepts e.g. gym self-concept, physical self-concept (PSC), general PE self-concept and PE evaluation were all used to determine how the children felt about themselves physically. A mixture of methods, self-report, grades, observation were also used to assess children's ability from both the teacher and individual perspectives. Using a variety of methods is a strength (e.g. observational and self-report), however, single item questions still dominate in the majority of the studies which is not a problem in itself, however, reliability and validity data for these could be collected and analysed in a separate sample for future research. The 4 studies which employed a longitudinal design had follow up lengths varying from 10 weeks to 3 years. In all cases the research questionnaires were administered class wise with a number of individuals involved in the process of data collection including trained research assistants, teachers, trainees and researchers.

The dependent variable most frequently assessed was physical self-concept (PSC), with three of the studies suggesting that the higher the class average, the lower the level of PSC with this relationship enduring over the course of the study period (Chanal et al., 2005; Chanal & Sarrazin, 2007; Trautwein et al., 2008). In addition to PSC, class level comparisons were associated with liking of PE (Kuyper & Dijkstra, 2009) where liking decreased as class level increased. In contrast to the studies regarding PSC, Margas et al. (2006) proposed that the decline in self-evaluation seen in these three studies could be due to a reduction in self-categorisation rather than social comparison i.e. immediately after selection to a higher ability group, individuals' self-perception increased, and then decreased over time to pre-selection levels. This study contradicts the findings of the others; however, there are several limitations that should be noted before drawing conclusions. The first is that Margas et al. (2006) engaged in a manipulation to allow children to understand that they had been chosen for a high ability group which is not normally how schools would behave when streaming children. The second was the use of one item to assess social comparison which included no frame of reference and revolved around efficiency in class. This does not allow us to determine which frame of reference the children in this study used to assess their 'efficiency' against and highlights the need to define the frame of reference when researching social comparison. The

findings surrounding the long term effects on PSC remain, therefore, unclear and certainly warrant future research. Furthermore, some similarity in measure is needed and as well as multi-item measures, if research is to progress our understanding of comparison processes.

Other dependent variables assessed included grade and free time spent engaging in physical activity outside of the PE lesson (Chanal & Sarrazin, 2007; Trautwein et al., 2008). Trautwein et al. (2008) found a similar relationship for free time activity to PSC where individuals in a high ability class indicated spending less time engaged in free time physical activity than those in a lower ability class. The number of studies investigating these relationships is, however, minimal and future research is needed to further examine and replicate these findings.

Furthermore, the findings highlight that research utilising frames of reference other than the class is very important if researchers wish to attain a comprehensive understanding of how social comparisons work both within physical education and more generally. This is demonstrated through the research by Chanal and Sarrazin (2007) where a positive relationship between comparing oneself with a higher ability small group and grade was found whereas no relationship between comparing with a higher ability individual and grade was identified. These findings in addition to those for PSC indicate the need to examine multiple frames of reference at once.

Overall, these findings as a group attest to the important influence that the generalised (class) other has on physical self-concept and other dependent variables. In most cases the class provided the strongest prediction of outcome rather than an individual or small group of individuals. The study findings also highlight the differing effect that multiple frames of reference may have on outcomes and indicate a need to continue to examine these relationships.

Discussion

Even though a wide range of search terms in multiple combinations were utilised, only five studies which met the inclusion criteria were found which highlights the discrepancy between the number of studies completed in psychology in general versus the number that have actually focused on or considered physical education.

Four out of the five studies employed a longitudinal method which is a strength of the research as it allows us to see how the relationships investigated developed and varied over time. This method allows us to examine reciprocal relationships over time and suggests that comparisons with the class are associated with physical self-concept and physical education grade. Future research, however, could employ other methods in order to examine these

relationships. For example an experimental design could be used to manipulate the comparison standard (upward/downward or generalised versus individual) and identify if there are certain combinations of direction and frames of reference which affect the outcomes of comparison. In addition, one study included was a field experiment; however, it manipulated self-categorisation in an overt way instead of examining this simply in a 'normal' physical education environment. Future research could examine self-categorisation in the same way, but look to measure it without an overt manipulation. Furthermore, Margas et al., (2006) did not operationalise a particular comparison standard which makes drawing conclusions concerning comparative evaluations relatively difficult. The differing results between this and the other included studies may simply result from a lack of measuring social comparison effectively rather than a lack of its role or the importance of self-categorisation. This review also highlights that the studies within physical education only examine variables that have been pre-defined by researchers. So far there has been no in depth exploration, either qualitatively or quantitatively into possible outcomes of social comparisons for adolescents in physical education. This may explain why there are such a small number of outcomes which have currently been assessed in this context. The included studies do, however, utilise a variety of methods which is another strength of the research when considered as a collective. These methods include observational, self-report and objective scores on obstacle courses meaning that the results from the studies cannot be attributed to mono-method bias. Additionally in the majority of cases, the results are similar and suggest that different measures and methods result in the same outcomes. These studies as a group suggest that the class average ability level is related to children's 'physical self-concept' whether that is measured as PE self-concept or in any of the other ways given in these studies. Furthermore, the role of comparisons with an individual and group are evident and require further investigation. All the studies are also quantitative in nature with none attempting to engage in qualitative methodologies or explore how social comparison might be experienced by children in PE. Future research using qualitative methodologies to explore children's experiences of social comparison in PE could provide beneficial information with regard to frames of reference which have not yet been considered.

In addition to this, the studies in this review suggest that the class average is an informative part of children's physical self-concepts', however, what underpins this relationship is not known. Future qualitative research could endeavour to unpick and understand these complex relationships in more detail. The importance of defining the frame of reference in social comparison research also became apparent during the review given that

relationships depended upon the frame of reference in question. Although Margas et al. (2006) claim that social comparison was involved in their study they did not actually measure it in any way, or use any particular frame of reference as a comparative standard. Future research into social comparison in PE would, therefore, be well advised to define the comparison group. The review highlights that the class has been the focus of social comparison research so far and that more research is needed into the importance of other frames of reference, particularly given that Skaalvik and Skaalvik (2002) propose four external frames of reference which might be important in the school context, albeit in relation to self-concept.

The review highlights that physical self-concept is a 'priority' variable of social comparison research in physical education. This is in contrast to many other areas of psychology which often focus on motivation and engagement in educational settings. This focus on self-concept may result from the studies mainly using the BFLPE to investigate comparison which is a phenomenon based around self-concept. This is, however, only one phenomenon/theory and future research should endeavour to examine other theories of social comparison processes such as Festinger's (1954) original hypotheses, or more recent theories such as the selective accessibility model (Mussweiler & Strack, 1999) or the related attributes hypothesis (Goethals & Darley, 1977) when researching in physical education to broaden our understanding of social comparison processes.

The review demonstrates that only social identity theory has been investigated in conjunction with social comparison research. There are two other theories of motivation, self-determination theory (SDT; Deci & Ryan, 2000) and achievement goal theory (AGT; Ames 1992) which may provide useful insight into social comparison processes if investigated at the same time as social comparison. Extensive reviews and descriptions of these two theories can be found elsewhere (for SDT see Deci & Ryan, 2000; Ntoumanis & Standage, 2009; Teixeira, Carraça, Markland, Silva & Ryan, 2012; for AGT see Ames, 1992; Braithwaite, Spray & Warburton, 2011; Nicholls, 1984). The reasons these might provide useful information in conjunction with social comparison are as follows. SDT details three needs which must be fulfilled to experience well-being in addition to defining different levels of self-determined motivation (behavioural regulations). These needs could be influenced by comparisons with the class and individuals and future research could find that social comparison moderates these relationships. Furthermore, behavioural regulations have been assessed many times in physical education (for a review see Ntoumanis & Standage, 2009) and demonstrated to link with various outcomes. It could be that these regulations moderate

the relationship between comparative evaluations and various outcomes, although these relationships are hypothesised rather than known. SDT additionally provides insight into environmental variables which could be important in influencing comparative evaluations and outcomes. Questions concerning whether teacher practices, for example, may influence comparison behaviour and outcomes of comparison still remain unanswered. This links closely with achievement goal theory (Ames, 1992; Nicholls, 1984) which was developed to explain how adolescents' and children define competence, but has been more widely applied and is now a theory embedded in the fabric of motivational research. This theory provides predictions and hypotheses concerning the environment that a teacher produces through the various practices that are engaged in within a class setting. This is termed 'motivational climate' where an ego climate is said to evoke comparisons with others in the class, and a task climate is said to evoke self-focus and importance of task mastery over beating others (ego climate). Theories such as these provide interesting and useful avenues for future research investigating social comparison and motivation in physical education and more widely within psychology.

All the studies included in this review were conducted in Western cultures. Although there will be variations in the form that PE takes in these countries, the principles of doing one's best and improving are rife in these cultures. There is the chance, however, that given the difference in importance placed on PE in different countries that the results may vary from place to place and as such this indicates a need for research in this area in a variety of countries such as the UK. It is clear from the design and method sections of the included studies that children in these countries complete different amounts of PE and that the systems in place to support children vary between countries. The fact that there are such differences between Western countries, further indicates the need to research social comparison processes in other cultures as well, for example Eastern cultures if we are to better understand social comparison processes as a whole, as well as providing important information for educators and policy makers.

Four out of the five studies focused on PE as a whole, whereas one focused specifically on one sport within PE. There is an argument to be made here for the need to split physical education into different activities, and investigate each one as a separate entity, particularly when investigating theories such as social comparison. This proposition is made because PE involves children taking part in a variety of different activities and comparative ability may differ significantly between lessons and activities. In the future research could investigate for example whether relationships between comparative evaluations and physical

self-concept exist and remain constant across specific activities within PE, or whether one activity/sport is particularly powerful in influencing different outcomes such as adolescent's physical self-concept.

A further improvement to research in this area could be made regarding consistency of measures. The use of so many different ways to measure physical self-concept made comparisons across the studies difficult. Future research should endeavour to try and use similar measures and also provide reliability and validity evidence for the single item measures which are often employed in social comparison research. The development of a multi-item scale for assessing comparative ability would also seem prudent as at present only single item measures are used.

Another part of the comparison process which to date, has not been researched in physical education (or more widely in adolescent samples) is motives for comparison. In addition to there being no specific research investigating children's motives for comparison in the classroom (Dijksta et al., 2008) a complete gap also exists in our knowledge of these motives in PE. This could provide a useful avenue for researchers wishing to understand comparison processes in the future.

Finally, the systematic review highlights that there are no studies in physical education that to date, examine either the role of individual difference in social comparison processes, or the influence of social comparison orientation (Gibbons & Buunk, 1999). These two areas will not be discussed in detail here (readers are directed to the following papers for investigations and reviews: Darnon, Domnier, Gilléron & Butera, 2010; Jones & Buckingham, 2005; Olson & Evans, 1999; Régner, Escribe & Dupeyrat, 2007; Wheeler, 2000), but are two further avenues which could provide useful information and insight into social comparisons engaged in by adolescents in physical education.

Conclusions

In conclusion there are only five studies which met the inclusion criteria. As a result, many limitations have been discussed and recommendations for future research made. The evidence does suggest, however, that social comparison is a sound theoretical basis for making predictions and investigations within physical education which can provide useful insight into adolescent social comparison process within this context. The review highlights some key limitations to social comparison knowledge. These limitations form the basis for the empirical studies completed in this thesis. Firstly, the review highlights the lack of knowledge and investigation of adolescent motives for comparison, and if and how these relate to frames of reference and consequences. Secondly, although the class, individuals and

small groups have also been used as comparison standards, there is a lack of understanding of how comparisons with more than one of these frames of reference at once might interact to influence outcomes. Thirdly, the number of outcomes investigated is very small with physical self-concept examined most frequently. Research assessing the impact of comparisons on other outcomes in physical education is therefore needed. Fourthly, there has been no examination of any environmental or individual moderators that might influence social comparison processes. Finally, an in-depth, qualitative examination of social comparison processes in an adolescent sample is vital to help researchers begin to understand social comparison from an adolescent perspective, rather than assuming that researchers know the motives, frames of reference used and consequences of comparison experienced by adolescents.

Summary and Rationale for Studies One to Four

In order to examine adolescent motives for comparison, frames of reference and consequences for comparison in addition to individual and environmental moderators, both qualitative and quantitative methods were used within this thesis. The use of mixed-methods to examine questions has sparked many philosophical debates amongst researchers which can be found elsewhere (Sale, Lohfeld & Brazil, 2002; Lincoln, Lynham & Guba, 2011). For the purpose of this thesis, however, the research is completed from a post-positivist perspective (Lincoln et al., 2011; Phoenix et al., 2013). The ontological perspective is therefore, that "nature can never be fully understood. There is a single reality," but we will never be able to completely understand this reality, "what it is or how to get at it" (Phoenix et al., 2013). Although this approach epistemologically may attest to the need to stay as removed from participants as possible within the research process (Phoenix et al., 2013), it also concedes that in addition to the usual quantitative methods associated with this stance, that qualitative interviews may be an appropriate form of enquiry in order that research questions can be investigated and insight and knowledge gained through this method of enquiry.

For the purpose of this thesis, the qualitative study (Study 1) provides an in-depth investigation of the experiences of the individuals who took part. The reality was interpreted by comparing the participants' experiences and highlighting the commonalities between them. Through this process insight was gained into the meaning that the individuals attributed to key constructs. The themes/constructs developed, represent the reality of social comparison processes in physical education. Once themes regarding the objective reality were identified, the aim was to test the robustness of the objective reality by the examination of the strength of the identified relationships and whether these could be represented on a

broader scale. This was achieved through the examination of relationships using quantitative methods.

Chapter III details the qualitative investigation carried out in Study 1 which aimed to develop new knowledge and insight into adolescent motives for comparison, frames of reference and consequences of comparison within physical education. Use of a qualitative approach, allowed the focus of the study to centre of adolescent experiences of social comparison within physical education whilst providing a data set which could be analysed both deductively and inductively. This provided an opportunity to group and draw together similarities between participant experiences whilst also giving equal weight to experiences only portrayed by a few individuals within the sample. Furthermore, thematic analysis resulted in the development of interrelationships (Saldaña, 2011) between themes which provided a better representation of the data than just simply detailing each theme individually.

Chapter IV describes Study 2 which builds upon the research in Study 1 and previous literature by providing a quantitative examination of comparative evaluations with two frames of reference in physical education and examining the relationship between these and physical self-concept, engagement and disaffection in class. This study examines the two most popular frames of reference described within the qualitative study and three outcomes which were chosen based on both the qualitative study and previous research. This study extends previous research by examining the relative influence of both the class and a chosen individual within the class on the dependent variables. Furthermore, this study sought to further previous research by providing the first quantitative examination of motives for comparison in an adolescent sample. This study assesses physical self-concept which serves to replicate and extend previous research in physical education in addition to extending previous research by examining disaffection and engagement in class.

Similarly, Study 3 detailed in Chapter V builds upon previous research and the two preceding studies within the thesis by continuing to examine the relationship between comparative evaluations with the class and an individual and physical self-concept. This study additionally included self-efficacy as a dependent variable as well as providing a measure of affective outcomes through the use of positive and negative affect. Furthermore, this study sought to bring together social comparison and self-determination theory (Deci & Ryan, 2000) by utilising a measurement of behavioural regulations. These regulations were included in order to assess if these moderated the relationships between comparative evaluations with the two frames of reference and the four dependent variables. Finally this

study introduced a multi-item scale for measuring motives for comparison and in doing so provided the first quantitative evidence for both the direct and moderating role that motives play in predicting outcomes.

Study 4 completes the set of investigations carried out as part of this series of research and is detailed in Chapter VI. This study included the same variables as Study 3, whilst additionally assessing three environmental variables (perceived autonomy support, ego climate and task climate). The rationale for inclusion of these environmental variables was two–fold. Firstly, the research was designed to examine if these environmental variables could moderate the impact of social comparisons on the four dependent variables in question. Secondly, by including these environmental variables the study brought together elements of self-determination theory (Deci & Ryan, 2000), achievement goal theory (Ames, 1992) and social comparison research which has not previously been attempted.

Chapter III

Study 1

Social comparison in physical education: An exploratory study

Introduction to Chapter III

The literature and systematic reviews detailed in Chapter IIA and B highlighted several gaps within the general social comparison literature and specifically within physical education. In particular there is little evidence which provides insight into adolescent motives for comparison, the frames of reference used and/or the respective influence of different frames or reference. Furthermore the number of outcomes investigated and related to social comparison in young samples is limited with no studies to date which have attempted to provide an adolescent perspective or understanding of social comparison processes during this developmental period. To address these gaps in the literature, a qualitative study was undertaken which is detailed in this Chapter. A qualitative approach was utilised to provide an in-depth and rounded view of social comparison motives, frames of reference and consequences in physical education from an adolescent perspective. This was carried out not only to improve our understanding of social comparison in this age group, but also to try and delve deeper and provide a more comprehensive understanding of these processes and these might sit beneath theories such as the BFLPE discussed in Chapter IIA. The study detailed within the present Chapter focuses on adolescent motives, frames of reference and consequences of comparison.

Abstract

The purpose of this study was to explore adolescents' motives for engaging in social comparisons in physical education (PE), their frames of reference and the perceived positive and negative outcomes of engaging in these comparisons. Building on previous literature, in depth accounts of comparisons were gained through the use of qualitative methods. Twenty-two pupils aged 11 to 15 (M = 13.12 years, SD = 1.06) from two secondary schools in the East Midlands and South West of England each took part in two semi-structured interviews. Thematic analysis resulted in the categorisation of self-evaluation, self-improvement and self-enhancement as central motives for engaging in comparisons in PE. Comparisons were class and sport-specific, with many pupils choosing to compare with friends in the class. Reference to upward and downward comparisons occurred numerous times, with the 'best' at each sport frequently cited as a target for comparison. Although analysis revealed many positive consequences resulting from engaging in social comparisons such as increased effort, there were a number of negative effects identified including withdrawal of effort and decreased interest and desire to engage in PE. This study provides insight into the scope and impact of social comparisons in the PE setting and suggests that, to date, prior empirical work has provided a limited understanding of this complex topic.

Keywords: Social comparison, physical education, motives, frames of reference, consequences of comparison

Introduction

Comparing oneself to others is a process which humans have engaged in for centuries in order to gain knowledge about themselves. It was not until 1954, however, when Festinger's seminal paper on social comparison processes was published, that research into this complex process really began. Festinger (1954) provided a number of hypotheses which have since been tested in various ways with researchers developing new theories and ideas that stem from Festinger's hypotheses. Goethals and Darley (1977) used attribution theory to classify the similarity hypothesis, Tesser and Campbell (1982) devised the self-evaluation maintenance model to explain why people engage in comparisons, whilst Mussweiler and Strack (2000) developed the selective accessibility model to clarify how social comparisons can influence self-evaluations. In addition to theories of comparison, researchers have also focused on specific parts of the comparison process such as motives (Helgeson et al., 1995; Wood, 1989; Wood et al., 2000), direction (Wood et al., 2000) and consequences of comparison (Buunk et al., 2005; Chanal & Sarrazin, 2007; Smith, 2000). Although there have been a vast number of research studies carried out focusing on social comparison theories, there is not yet one theory which links all the various parts of the social comparison process together, for example, motives with the target and subsequently target choice with the outcome (Suls & Wheeler, 2008).

Furthermore, there is a disparity between our understanding of adult and children's social comparison with research tending to favour adult samples (e.g. Klein, 1997; Locke, 2007, Helgeson & Mickleson, 1995; Wood et al., 2000). This disparity means that our understanding of adult comparison processes is currently more comprehensive than that of young people. As a result there are still a number of questions which remain unanswered regarding adolescent's social comparison processes. These include: whether adolescent's comparisons are driven by the same motives as adults (evaluation, improvement, enhancement), which comparison standards are used by children and what are the consequences, if any, of comparing. Typically, research into social comparisons involving young people has been completed in the school environment and to a large extent involved academic subjects or the classroom context (e.g. Huguet et al., 2001). This has left researchers and those interested in 'physical' domains such as physical education (PE) with insufficient knowledge and understanding of how comparison functions in such situations. Not only is PE an obligatory part of school life for many children, an important learning environment where children learn to develop their physical capabilities and a setting where social comparison information is readily accessible, it is also a naturalistic setting in which

one can study social comparison. The purpose of this study was, therefore, to explore children's perceptions of their motives for comparison, frames of reference used and the consequences of comparison within the physical education environment.

Motives for Comparison

Festinger's (1954, p.117) primary hypothesis - that "there exists, in the human organism, a drive to evaluate his opinions and abilities" - has been tested (Helgeson & Mickleson, 1995; Wood, 1989; Wood et al., 2000) and supported in many instances. Self-evaluation has, however been challenged as the sole motive for comparison with others. In addition to a drive to evaluate, improvement, common bond, enhancement and validation have also been proposed (Helgeson & Mickleson, 1995; Wood et al., 2000) as motives for comparison with others. Although the majority of research assessing motives has focused on adults with Wood et al. (2000) linking motives for comparison to direction[6] of comparison, there are few studies which provide insight into children's motives for comparison (e.g. Butler, 1992). This research has mainly focused on goals (mastery and ability) and primary school aged children. Only Lubbers et al. (2009) have specifically investigated secondary school aged children's reasons for comparison but this study did not look specifically at 'motives' for comparison. Furthermore, no research to date of which the author is aware has investigated motives for comparison in a 'physical' domain.

Butler (1992) combined social comparison and goal research in an experimental study. The results suggested that social comparison behaviour was affected by condition (mastery versus ability). Butler (1992) concluded that those in the mastery condition were just as likely to compare due to reasons of evaluation and improvement. In contrast, however, those in the ability condition, when scoring highly, engaged in self-enhancing behaviours and when performing badly avoided comparison in order to, the author proposed, avoid establishing how poor performance actually was. This study has several limitations with regards to motives, the first that children chose certain targets which were not people, but objective standards. Festinger (1954) proposed that subjective means are chosen when objective standards are not available, however, it is now widely accepted that individuals compare regardless of whether objective standards are available or not (Klein, 1997). With regards to Butler's (1992) study, objective means (grade or score) were provided. In the classroom environment, however, particularly in PE, subjective references (not a concrete

[6] Direction refers to the perception of ability of the comparison standard. I.e. when the other is perceived as/objectively is more able the comparison is termed upward, same standard is termed lateral and less able is described as a downward comparison.

score, but opinion based/perception) are also readily available where ability is ‘on show’ continually during the lesson. Investigating social comparison in an environment where subjective targets are also available may help to further clarify children’s motives for comparison.

Lubbers et al., (2009) allowed children to indicate one of six reasons for comparing with a chosen individual. Three of these were direction related i.e. because the target was worse (less able), the same or better (more able) than the comparer. One reason was due to proximity i.e. he/she sits next to the comparer in class, another was friendship and the final response was ‘another’ where participants could specify their reason for comparison with the target. The ‘another’ responses were then coded into the previous five groups in addition to the creation of a further ten categories which included; relation (e.g. sibling); liking; good student/best in class; it’s fun/for curiosity; attributes related to performance; knowing the target for a long time; no reason; the target is kind when presented with social comparison information (e.g. ‘he is not laughing when I have a bad grade’); as part of a game/rivalry; disliking. These results indicated that there are many reasons why children compare with others; however, this study fails to determine if these reasons are underpinned by other motives e.g. improvement or evaluation or if the reasons identified by Lubbers et al. (2009) underlie comparison behaviour. In short, the question here is, are the motives to evaluate, improve and enhance precursors to the reasons for comparison mentioned in the study? The findings seem to suggest that there may be other underlying motives. For example, “attributes related to performance” would seem to be underpinned by the motive to self-improve. Given that Lubbers et al. (2009) did not investigate evaluate, improvement or enhancement as well as their own reasons, it seems difficult to draw conclusions as to whether this provides support, contradictory or complementary evidence to these three motives which have received attention in adult samples. There is a gap in the literature here which is worth exploring, i.e., is the reason for comparing with a better off other because the comparer is motivated to self-improve or self-enhance?

Overall, there is a lack of research attempting to understand children’s motives for comparison and although Lubbers et al. (2009) and Butler (1992) have made some progress, there is clearly a need to better understand these motives which may underlie and play a role in both target selection and outcome of comparison.

Direction of Comparison.

Direction of comparison refers to the perceived ability of the comparison standard. An upward comparison would be with a target who is either objectively or perceived to be

better/more able. A lateral comparison refers to a target that is objectively or perceived as the same ability level. A downward comparison is one where the target is objectively or perceived to be less able than the comparer.

Wood et al. (2000) and Helgeson and Mickelson (1995) researched motives for comparison in relation to direction of comparison. In addition Wills' (1981, pp. 245) downward comparison theory was one of the first to suggest that people "can increase their subjective well-being through comparison with a less fortunate other" which inherently links motives and direction of comparison. Helgeson and Mickleson (1995) found that when self-evaluation and common bond were the motives for comparison, similar others were most likely to be used for comparison. When comparisons were motivated by self-enhancement and altruism, downward comparisons were most frequently engaged in whilst upward comparisons were most frequently used to serve self-destruction and self-improvement motives.

Festinger's (1954) original hypotheses, proposed that individuals are more likely to compare with those who are similar than those who are dissimilar (frequently referred to as the similarity hypothesis). This suggests that individuals will choose to compare with others who are of similar attributes (in some cases this may be ability) which is supported by the findings of Lubbers at al. (2009). In addition Duquin (1980) researched the similarity hypotheses in a series of experimental studies with participants from elementary, middle and college samples. The findings supported the hypothesis by suggesting that individuals prefer to compare with individuals of the same sex and of the same ability.

Research assessing direction of comparison and motives in addition to general direction research in the classroom and physical education is minimal. Dijkstra et al., (2008) in their review of social comparison research in the classroom concluded that when children compared upwards that a higher standard of performance was attained, but with a simultaneous increase in experience of negative affect and a decline in academic self-concept. These research findings highlight the importance of considering direction of comparison in both motives and consequences of comparison. Furthermore, targets are also often referred to as upward, lateral, or downward without specifying more fully how far up or down (Nosanchuk & Erickson, 1985). For example is a better off other perceived as just a bit better or much better than the comparer?

Drawing this research on motives and direction of comparison together, there are a few relationships which seem to exist and warrant study in adolescent samples. These include relationships between direction and the outcome of comparison, motives and direction,

motives and the outcome of comparison. Our understanding of how these parts of the comparison process function in child populations, in particular the school environment, however, is limited and research investigating these relationships is needed.

Frames of Reference

No research to date has specifically explored young people's frames of reference in the classroom or physical education i.e. it has not considered who adolescents choose to compare with from the child's perspective. Skaalvik and Skaalvik (2002) proposed eight frames of reference, four internal and four external that might be important in influencing/determining self-concept. There are no studies to date, which have explored if there are any other frames of reference which may inform other outcomes or influence other factors such as engagement in a task. Stipek and Mac Iver (1989) suggested that children's frame of reference may expand with age (during secondary school), with older children (adolescents) comparing their grades or abilities more widely than just the classroom. These suggestions, however, have not been yet been tested or supported, indicating a further need to investigate adolescent's frames of reference during this developmental period (secondary school).

Previous research in physical education has investigated comparisons with individuals (Chanal & Sarrazin, 2007), small groups (Chanal et al., 2005) and the class average (Chanal et al., 2005). These studies have, however, used only quantitative methods and assumed that these frames of reference are important to children rather than exploring which target might be the most important to the participants. Although the volume of research giving children a voice and agency (Jeans, 2009) is increasing, there do not appear to be any studies at present which have attempted to do this within the social comparison literature involving any 'physical setting'.

Friendship.

To add further complication to the picture, Lubbers et al. (2009) found that when a friend was present, 78% of students picked their friend as the target, which suggests that direction (upward or downward) may be less important and that friendship is the key to comparison target choice. This, however, is the one of the only studies of which the author is aware that investigates the role of friendship in social comparison processes, highlighting the need to explore whether children indicate friends as targets for comparison and if so, does this mean that in these instances, direction and motives become redundant parts of the comparison process?

Consequences of Comparison

Overall consequences for comparison can be broadly split into three groups: cognitive, behavioural, affective. To date, research in the classroom has mainly focused on two outcomes, performance (behavioural) and academic self-concept (cognitive) (Dijkstra et al., 2008). These outcomes although interesting to understand are not necessarily the only ones that teachers, practitioners and researchers should be, and are, interested in understanding. For example, understanding if there are any differences in processes that precede motivation, sustained effort and attention versus amotivation, giving up and poor attention would be useful for both teachers and researchers.

Variables such as task perseverance (France-Kaatrude & Smith, 1985; Santrock & Ross, 1975) and misbehaviour (Khoo & Oakes, 2003) have been linked to social comparison. For example, Khoo and Oakes (2003) suggested that misbehaviour could be a mechanism for dealing with negative social comparison information. This research (Khoo & Oakes, 2003) has been conducted within a more structured classroom environment. This structured environment is in contrast to physical education which usually takes place in open settings. This open environment presents an opportunity for researchers to investigate other consequences which children perceive to be related to social comparisons made in class.

In addition to these studies investigating outcomes to comparison, the five studies identified by the systematic review in Chapter IIB, provide a basis from which an exploration of further variables or concepts that might be affected by social comparison processes can be carried out. In summation, the research that already exists in PE (Chanal et al., 2005; Trautwein et al., 2008) provided evidence for the existence of the big-fish-little-pond effect (BFLPE) (e.g. Marsh & Hau, 2003). The BFLPE, although not specifically developed to assess social comparison, assumes that the average ability of a group affects levels of self-concept. What the authors of the BFLPE fail to explain is why the effect occurs, i.e. do adolescents compare with this class average, do adolescents understand this as a concept, and if so, how do adolescents perceive the average? Although the body of evidence supporting the BFLPE is growing, there still remains a lack of clarity regarding the role that social comparison may play in the BFLPE.

Trautwein et al. (2008) researched the reciprocal relationship between free time physical activity, PE grade and physical self-concept (PSC) whilst examining the consequences of being a member of a class with high average ability. The results provided evidence that those who were members of a class with high average abilities reported lower levels of physical activity outside of the class. Overall, the research so far in PE suggests that

social comparisons can affect children's PSC and physical activity levels. Although physical activity levels and PSC are important variables to measure, it is also important that researchers investigate other outcomes that might be related to, or influenced by, the social comparisons that young people make so that the results can be disseminated and used by those working in schools to help inform practice.

Chanal and Sarrazin (2007) looked more closely at frame of reference effects in physical education and the potential effects these comparisons may have on what they termed PE self-concept. The study examined an explicit comparison target, an explicit small group and an implicit group (class). The results indicated that there was a negative effect of the class average on PE self-concept, but a positive relationship with the small group level. This demonstrates that different frames of reference have different relationships with dependent variables and highlights a need to further understand which are more influential in determining outcomes.

In contrast to these studies, however, Margas et al. (2006) investigated the influences of classmates' ability level on physical self-evaluations. To achieve this, a sample of physically gifted students were grouped into a homogeneous (high ability) class for a period of one year. Physical self-evaluations from the homogenous group were compared to a mixed ability class (heterogeneous). Self-evaluation in PE was measured at different time points throughout the year. The results suggested that there was no effect of grouping on final self-evaluation in PE and that self-evaluation of those within the heterogeneous class increased throughout the year. Additionally, self-evaluation in the homogenous group declined throughout the year. This decline may be explained by the initial increase in self-evaluation which was seen directly after grouping occurred. Margas et al. (2006) propose that is due to social identity theory i.e. that as soon as the participants in the homogenous class were grouped, an increase in self-evaluation occurred due to identification with the 'higher' status group. This may explain why the BFLPE occurs. Pupils originally feel much better about themselves when put into a high group, but their self-evaluations return to 'normal' by the end of the year. These studies, however, do not provide clarity on what, if any, social comparison processes may underlie these relationships, the importance of different frames of reference and whether comparisons are with forced (e.g. the class) or chosen (e.g. a chosen group of people) targets.

Overall these studies suggest a need for further research in physical education addressing behavioural and cognitive outcomes related to social comparisons. These results also add further weight to the need to understand social comparison processes from children's

perspectives and how the use of multiple frames of reference at one time, for example, may relate to important educational outcomes.

Research addressing affective outcomes of social comparison in the classroom has focused on academic subjects rather than PE, with mixed results (Buunk et al., 2005; Smith, 2000). Buunk et al. (2005) assessed direction of comparison (upward or downward), the focus (self versus other) and also how the comparison was framed (identification/assimilation or contrast). The results indicated that, after comparisons, pupils were less likely to experience worry and resentment. Wehrens et al., (2010) have subsequently added further understanding in this area by categorising affective responses to social comparison and academic performance into three factors: empathetic; constructive; destructive. Empathetic responses were related to sympathy, concern for the target and happiness when the target outperformed the comparer. Constructive responses referred to a self-focus and concern for one's improvement and were related to positive reactions whilst destructive responses were both self and dual focused encompassing negative feelings including envy and schadenfreude (experience of pleasure at another's misfortune) (Wehrens et al., 2010). Although this study (Wehrens et al., 2010) provides some useful insight into affective responses to social comparison there were a few limitations which indicate a need for further research in this area. The first is that only academic subjects and test scores were used. Test scores are objective standards and not subjective which are in many cases sources of comparative evaluations. Furthermore, the effect sizes were small with a large sample size and finally, there is no way of knowing the direction of relationships proposed in the study. These studies on affective responses, although few and far between provide an interesting basis, from which, other research into social comparison can grow.

The Present Study

Drawing all this research (motives, direction, frames of reference and outcomes) together, it is clear that investigating social comparison from an adolescent perspective is required, in addition to the need to further understand motives, frames of reference and consequences of comparison. Additionally several theories have been posited since Festinger's (1954) theory of social comparison processes was published, but none of these have examined closely how and if the different hypotheses Festinger proposed interlink and relate to each other. Furthermore, research involving young people and social comparison has been minimal compared to the number of studies completed in the area in general. That which has been completed with children is largely, if not exclusively, quantitative in design giving no agency to the children (Jeanes, 2009). Recently there have been arguments

proposed that suggest researchers have a moral obligation to listen to young people and involve them in research, not only to explore social comparison processes, but also to gain an understanding of young people's perceptions making them an active part of the research process. In order to address these gaps in the literature, a qualitative design was employed to investigate the study aims (Piggot, 2010).

The purpose of this study was, therefore, to explore social comparison processes in physical education from an adolescent perspective with a specific focus on motives, frames of references and consequences. The second aim was to understand if and how these different parts of the comparison process inter-relate.

Method

Participants

Twenty-three pupils from two secondary schools (located in the East Midlands and South West of England) took part in the study. One participant's data were removed from the study because he was only able to attend one interview for five minutes as his teachers would not permit him the time out of his lessons.[7] Thirteen female and nine male 'data rich' participants aged 11 to 15 (M = 13.11yrs, SD = 1.04) completed two interviews on separate occasions (M_{time} = 40 mintues, SD = 15minutes). Both schools were co-educational, state funded and in areas where deprivation levels were lower than average. Teachers were asked to identify pupils who ranged in ability level. This was to ensure that the participant sample included individuals who struggled in PE (low ability) to those were the best in the class. (high ability). Data collection continued until a range of abilities was represented in the sample. This required collection of data up to, and including, Participant 23 after which date collection was ceased.

Interview Schedule and Pilot Study

The interview schedule (Appendix C) was designed based on the frames of reference suggested by Skaalvik and Skaalvik (2002). Given that these frames of references were deemed to be important within the school context, and physical education takes part in the school environment, these frames of reference were used as a starting point for the interviewing process. The interview schedule was designed to facilitate the interview process, and to ensure that the social comparison process as a whole was covered. Adolescents were asked what, when, how and why they compared with others, if indeed at all for each frame of reference. The final set of questions for frames of reference revolved

[7] This is one of many issues that I encountered whilst interviewing in the school context. For a further discussion of these please see Table 3.1.

Table 3.1

Reflections of the Interview Process, Data Analysis and The Author (Interviewer) as part of the Research Process

Area of Reflection and Comments
Ethical approval: School and parental consent was required, therefore, access was only available to children within the schools whose school and parent consented to the child taking part. ***School specifics which influenced the environment interviews were conducted in:*** Both schools had their own rules and set up for the having the author at their school. *School 1* – Office space was provided for the interviews. This was a side office adjacent to the main PE office where teachers could sit and work during their free lessons. The school requested that the door remained open at all times in order that their child protection policies were followed. Teachers could and did walk in during the middle of an interview. The interviewer (author) was asked to attend in PE kit. Two rounds of interviews were agreed to. Interviews were arranged to occur during any school lesson and break times. *School 2* – Room provided by the school. Participants were allowed to decide if the door remained open or closed. All children chose to close the door. No instruction on clothing was given - smart clothes were worn by the interviewer. Two rounds of interviews were agreed too. Interviews were arranged to occur during PE lesson time. ***Reflections on the potential influence of room set up:*** I (the author and interviewer) believe that in some cases having the door open with the teachers outside in the first school had a negative impact on the interviews. On one particular occasion a teacher walked in and one of the girls just clammed up, subsequently all she said was 'yes' or 'no' for the rest of the interview. In contrast at School 2, the children seemed to talk much more easily, however, this is my reflection and it may have had nothing to do with the room or location provided for the interviews. ***Reflections on potential influence of clothing:*** When I compare the two schools and think about the interviews with children who were not very good at PE, I believe that the children talked more when I was in smart clothes. My presupposition is that being in PE kit, I looked like someone who liked sport and this may have impacted upon the way the children viewed me. When attending in smarter clothes with a more academic I believe the children saw me as an outsider, rather than a 'one of those who likes sport'. This is my interpretation of what happened, but I feel it is worth noting and an

important reflection on the interview process.

Timings of interviewing in school context – managing the time in the interview:

A lesson and/or break time does not give one very long to try and build rapport with participants and get through an interview schedule. Given the time constraints within the setting, it was essential to try and keep the children on track, which sometimes I failed to do because I didn't want the participant to feel like I didn't care about what he/she was saying. Some children loved to talk and trying to keep them on track was just as difficult as trying to get a child to say anything if he/she was mainly answering yes or no.

Multiple interviews:

Two rounds of interviews enabled further clarification and discussion around contradictions and inconsistencies respectively. Second interviews also allowed for the addition of questions around new ideas that arose during the first round of interviews.

Those who had been less talkative during the first round tended to say more during the second interviews. My reflection was that once participants realised that the interviews really had been in confidence with no feedback to the teachers, they felt more trusting in me and were happier to discuss PE lessons with me more openly. Another possibility, however, is that on meeting me a second time participants were more used to answering questions and felt more relaxed during the second round of interviews.

Children and dictaphone use:

A preconception had been that the children might be concerned about the use of a dictaphone, however, all participants agreed to being recorded and none of them appeared to have any issues talking with it there.

Disagreement with the interviewer:

I had been worried that participants would agree with all the questions I asked, however, the participants seemed willing to disagree or state their own opinion quite happily even if that was contrary to what I suggested or was asking.

Reviewing the transcripts:

Interview transcripts are sometimes sent back to participants in order for them to check the transcripts and what was said. I specifically chose not to do this. First of all I was worried about children receiving these at school – A friend could have jokingly taken it and read it, or transcripts could have accidentally been left out for a teacher to see. Given that it was stressed to participants that no one would have access to their transcripts apart from the interviewer/researchers transcripts were not returned to retain confidentiality.

around the perceived consequences of making these comparisons (cognitive, affective and behavioural). The schedule was flexible and the interviews were largely led by the participants who at the end of the interview were given the opportunity to add anything further they felt was relevant or that they wanted to discuss.

Pilot studies were carried out with three university students (who had just left school). The participants were asked to think respectively about their experiences in PE at school. Pilot interviews were carried out to find out how long the interviews could potentially take and also whether or not the content could be covered in what was considered a reasonable length of time for the school context (1 lesson = 40 minutes). The structure seemed to work well - however, the length of time varied from approximately forty minutes to just over one hour. Pilot interview participants were asked to give feedback on the structure of the interview and my interviewing techniques to help me develop as an interviewer. After the pilot interviews were conducted it was clear that the main interview schedule was too long and complex, so an interview crib sheet (Appendix D) was developed to highlight the main areas to focus on when interviewing the participants.

Each participant completed the Physical Self-Description Questionnaire PSDQ (Marsh, Richards, Johnson, Roche, & Tremayne, 1994) (Appendix E) during the first meeting. This was then used as an elicitation device in the second interview. Each participant was allowed to ask the interviewer for clarification if he/she did not understand any of the questions. Minor adaptations were made to the questionnaire to aid understanding for British children as some of the terms reflected the use of language in the country where the questionnaire was developed.

Design and Procedure

After ethical clearance was granted by the University ethics board (see Appendix F for ethics forms), schools were contacted by letters to head teachers (Appendix G) through staff at the school who acted as ‘gatekeepers’ (Miles & Huberman, 1984). Once permission had been granted for the researcher to enter the school to conduct research, parental opt-out forms (Appendix H) were sent home to the parents of the pupils who were identified by teachers for participation in the study. These individuals were chosen by PE teachers at the two schools. Interviews were completed during lessons and break time at school. Participants were given instructions by their school teachers of the location within the school for the interviews. All interviews were carried out in a room designated by the school in order to meet the ethical and child protection rules within the respective schools.

When participants arrived, they were greeted by me (the author) at which point I explained who I was and why I was there. Each participant was then asked if he/she was happy to take part in the study and asked to read the participant information sheet (Appendix I) and to fill in a willingness to participate form (Appendix J) if he/she agreed to take part.

Once the participants had signed the willingness to participate form, the reason for the study was re-iterated to them. Following this it was highlighted to every participant that participation in the study was voluntary, that they could leave at any time without giving a reason and that their responses would remain confidential. Due to the confidential nature of the data, participants were assured that their teachers would not be told what was said during the interview and that he/she would be allocated a participant number for identification purposes. The interviews began with general conversation and questions about the school day and favourite lessons in order to begin rapport building. The conversation then moved on to focus on social comparison in PE. Once the interview had concluded, each individual completed the PSDQ (which would then be used as an elicitation device in any subsequent interviews) and were thanked for their time and participation.

Second round interviews followed the same structure as the first, beginning with general questions about activities raised in the first interview i.e. if a participant had mentioned they were going on holiday or simply questions about their school day or week leading up to the interview. This second round of interviews was used to clarify points raised in the first, to try to unravel any contradictions which had arisen in the first round of interviews and to allow for further exploration and refinement of ideas and themes which arose during the interview and initial analysis process that preceded the second round of interviews. Furthermore, individual PSDQ scores were calculated between interviews. This allowed me to use the PSDQ as an elicitation device and ask questions on constructs of the PSDQ if participants had high or low scores on certain constructs. Participants were thanked at the end of this interview and reminded that the information would be kept confidential.

Data Analysis

The data were analysed using thematic analysis (Braun & Clarke, 2006). The analysis process followed Braun and Clarke's (2006) six phases (see Table 3.2). All interviews were audio-recorded, transcribed verbatim (in the results and discussion extracts are presented verbatim. E.g. 'coz' is the abbreviated word for because which reflects the way the participants spoke and used the word because in the interviews), read and re-read whilst initial ideas were noted down (for an example transcript see Appendix K). Any words (school names/school specifics, friend names) were replaced with pseudonyms. Ideas were also noted

down straight after the interviews took place, and where there was time to transcribe and reflect between each participant interview, new ideas for additional questions to ask subsequent participants were formed. This allowed the pursuit of other lines of enquiry that were not initially in the interview schedule but that seemed relevant to the participants and the research questions that had been posed. In addition, first round interviews were transcribed and read before the second interview was carried out with the participant. This meant that the second interview allowed for clarification of any contradictions which arose in the first round of interviewing.

Once the author felt familiar with the data, initial codes were developed. The analysis relating to frames of reference and motives involved the use of deductive analysis whereby previous research guided the start of the coding process, however, inductive analysis was also carried out so that new codes and ideas not previously covered in theory could be defined and used to answer the research questions. Particularly with reference to the consequences of comparison, the only two codes and ideas begun with were physical self-concept and grade as these had been highlighted previously as outcomes of social comparison in PE. An iterative process of looking back and forth between transcripts, coding and re-coding then ensued. Once the data had been coded and collated, phase three of analysis (Table 3.2) was performed. This involved the development of a mind map (Figure 3.1) which helped to collate and organise themes and identify interrelationships between themes. Themes were then reviewed and finally defined and named before the results and chapter were written. In addition to analysing the transcripts, whilst conducting the interviews and since collecting the data, I reflected upon the environment in which the interviews took place and how the dialogue within them evolved (see Table 3.1). Furthermore, to help me understand my role within the research process and some of the preconceptions I might have taken both to the interviewing stage and the analysis I undertook a reflexive interview with a fellow PhD student. These reflections are presented in Table 3.1 and may help to contextualise the data that have been analysed herein.

Interrelationship of themes.

The process of identifying and assessing whether themes inter-related gave much more clarity to the data than had previously been possible. Saldaña (2011, pp.92) identified that there may be interrelationships between themes which may cause a ‘domino effect to occur’. Within the analysis process, many interrelationships between themes were identified and in some instances this ‘domino effect’ of alternative interrelationships dependent upon classification into a particular higher order theme occurred. These relationships are outlined within the

Table 3.2

Phases for Thematic Analysis, Reproduced with permission from Braun and Clarke (2006)

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data, reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, produce report.

the results section. The mind map created as part of the analysis process, in addition to helping with clarity and organisation of thoughts and themes, provided useful insight into the way themes inter-related (Saldaña, 2011).

Judgement Criteria

The subject of judging the quality of qualitative research has been explored (Tracy, 2010) and debated (Smith & Deemer, 2000; Sparkes & Smith, 2009) by researchers. Tracy (2010) argues that there are eight "big-tent" criteria which can be applied when judging qualitative research, whilst Smith and Deemer (2000) have argued that the list of criteria should be open-ended, ever evolving and changing depending on the research being judged.

For the purposes of this research study I propose the following criteria for its judgement: Firstly, substantive contribution, i.e. has it provided new insight into theory, practice, adolescent's perceptions and raised new areas for research interest and development; secondly, insightfulness; thirdly, cohesiveness; fourthly, sincerity i.e. is it self-reflexive about values, biases and inclinations in addition to being transparent about the methods and challenges?; fifthly, ethical quality - were procedural ethics adhered to and exiting ethics

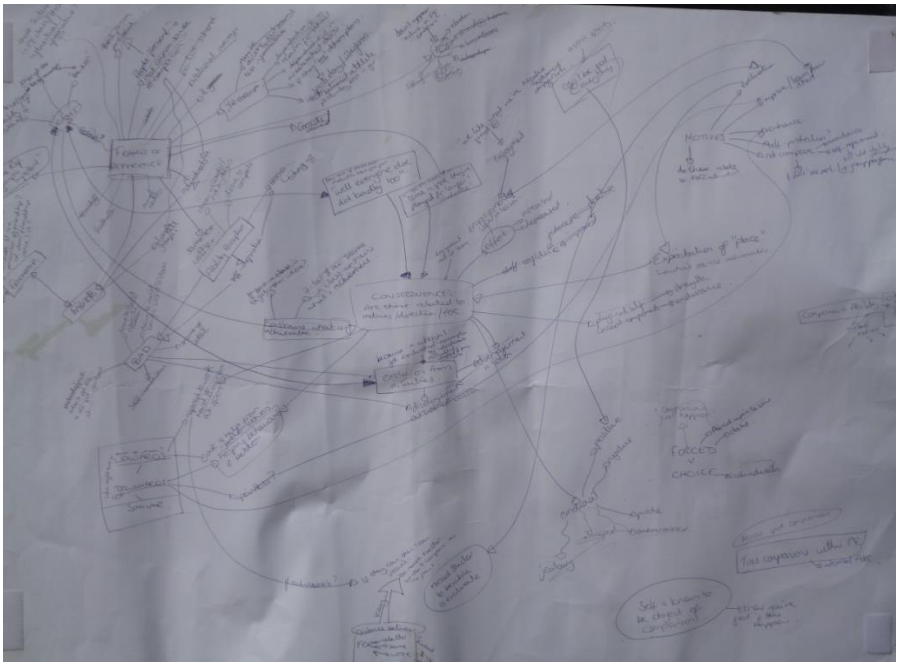

Figure 3.1 Mind map of themes and ideas

(sharing the research) evidenced in the way the data have been reported; sixthly, meaningful coherence - does the study achieve "what it purports to be about" (Tracy, 2010), connect and use literature in the area, and are the methods suitable for the aims of the research?

Results and Discussion

This was an exploratory study aimed at providing insight into children's social comparison behaviour with a specific focus on understanding children's external frames of reference, motives for, and consequences of comparison. External frames of reference were concentrated on in order to keep the study and analysis focused and manageable.[8] Whilst motives, frames of reference and consequences were to some extent focused on as separate entities, during the analysis process it became clear that many of the themes were inter-related (Saldaña, 2011). The results and discussion are presented simultaneously and in cases where there is an interrelationship with other themes these are discussed in both the context of the present study and with reference to previous research. Each sub-section of the results opens with an outline of the themes that will be covered in that section followed by a more detailed discussion of each. Where quotes are inserted, they are done so with surrounding text in order to allow the reader to understand the context of the narrative presented. Within the quotations, the interviewer is presented in bold and the participant in normal text. Each quotation is identified with each participant using his/her participant number.

[8] Internal frames of reference were not analysed in this study, although some participants did mention comparing with previous achievements.

The results sections are presented in the following order: motives, frames of reference, consequences and finally additional themes are noted at the end of the results section. Motive themes include evaluation, improvement, enhancement, unknown and avoidance. Frames of reference are then broken into those active outside and active within physical education classes. Following this, outcomes are then detailed in relation to the direction of comparison with two main themes identified – low perceived relative standing and high perceived relative standing. Finally additional themes which include "well it depends", expectation of performance level and overall perceptions of the physical-self bring the results and discussion section to a close.

Motives for Comparison

Through the analysis process - and the use of previous research as a guide to coding motives for comparison - five main overarching themes were identified. These are depicted along with their sub-themes in Table 3.3. Four of these; self-evaluation, improvement, enhancement and unknown/unintentional were themes identified that support previous research assessing motives (Festinger, 1954; Helgeson & Mickelson, 1995; Wood, 1989) and suggest that children may share similar motives for comparison as adults.

Table 3.3

Themes and Sub-themes for Motives for Comparison

Themes	Sub-themes
Self-evaluation	Is there any point in taking part?
	Desire to understand what is needed
	Desire to avoid mistakes that others make
	To see if you can help others?
	Know what you need to be to be in a team
Self-improvement	Desire to learn how to become more able
	Watch and compare skills, techniques and/or tactics
Self-enhancement	Desire to improve feelings about the self
Unknown	Comparison motive is indeterminable
	Comparisons spontaneous and not under conscious control
Avoidance	Avoidance of comparisons
	Self-referenced rather than other referenced
	Unable to compare unless target can be seen
	Distance between self and other too great, comparison is pointless

In addition to evaluation, improvement, enhancement and unknown, a further pattern in the data concerning the 'avoidance' of comparisons was evident across a number of cases

and led to the formation of a fifth theme, 'avoidance'. These results support and extend previous research by providing evidence for four previously identified motives for comparison in addition to providing evidence that adolescents can be motivated to avoid comparisons. Motives are addressed in the following order in the next five sub-sections: evaluation, improvement, enhancement, unknown and avoidance.

Self-evaluation.

This theme was characterised by participants expressing a desire to gain an understanding about their abilities. This was often linked within a quotation to a particular frame of reference (often the class). This provides support for Festinger's (1954 p.117) primary hypothesis, that humans possess a "desire to evaluate our abilities". The motives behind why we wish to self-evaluate, however, may vary between individuals, for example it might be to appraise what one is capable of achieving (Festinger, 1954) or, as was the case in many instances in this study, to know one's rank/position within the class. The interview extracts below are inserted to provide the reader with a snapshot of the data that led to the formation of self-evaluation as a theme.

> Participant 9. **are you ever actually aiming when you compare with people to like evaluate how good you are? Or is it just to see if you can improve?** Well um, I like to evaluate myself, I like to think oh yes I'm the best in everything, but then I don't boast about it

> Participant 21. **when you say that you make quite a lot of comparisons with your friends, can you tell me what it is that you are comparing?** I think just skill really, just um, how, how well you're doing it, I think everyone, everyone compares themselves to each other, you can tell if you're like really good at something, because you're really good at it, because um, you'll just perform better than all the rest of them, but yeah, it's really what you do on the day,....um yeah I think everyone compares themselves to each other in PE, I think that's just what makes people, what makes people say, like they do good or bad at sports, seeing how good other people are at it, so yeah, that's my opinion, so **…why do you think you compare with your friends?** well, I think just, I think just coz, know how good I am at something

Self-improvement.

This theme was defined as the desire to compare in order to understand how to develop and progress so that a higher level of performance could be achieved whether that be with regards to a skill, a task, or a specific movement. This theme was typically characterised by the participant discussing how he/she was driven to watch others to compare/see what the target was doing differently/better in order that the comparer could understand what was needed to achieve that higher level. This supports and extends previous research (Wood et al., 2000) by providing evidence that children are motivated to compare for reasons of improvement. In addition, improvement was often linked to the discussion of a target being

perceived as more able and, therefore, in possession of the desired knowledge/information required for performance improvement. Overall, there were numerous data segments coded to this theme which may reflect humans' 'unidirectional upward' focus on improvement that Festinger (1954) proposed exists in the cases of abilities. This desire to improve may also have been so prevalent because PE is an achievement setting where high levels of skill acquisition are sought and rewarded. The following quotes were typical of the sample:

> Participant 5. **why do you compare with people who are high in ability?** because if they're higher in ability, I wanna kind of be like their ability as well, whereas if you compare yourself with someone who has the lower ability, then probably you wouldn't be getting a high ability… coz if I watch them *(higher ability individuals),* then I can learn what they do and then maybe I can do it as well
>
> Participant 7. **when you compare with Sam in netball, what would you be comparing?** Um, like, maybe like um movement and speed, maybe, and like communicating with the team **ok, is she very loud?** Yeah…. **do you ever use her to watch and learn from?** um **or not really?** Sometimes, like in PE, if we're like doing skills in football, something like that because I know she's better at that than me and sometimes I pick like pointers off her and watch how she does it **ok** see if I can do it

Self-enhancement.

The third motive theme was labelled self-enhancement and defined as the desire of an individual to compare with others driven by the need or motive to boost feelings about the self/own ability. This pattern was present across the data set although references to comparing for this motive were less frequent than those of evaluation and improvement. This supports and extends previous research (Butler, 1992; Wills, 1981; Wood et al., 2000) by suggesting that secondary school aged children compare with others to self-enhance in addition to improvement and evaluation. In many instances, the desire to enhance was explicitly tied to comparison with an individual/target perceived as less able, whereas in other instances the actual desire to self-enhance was not explicitly tied to a particular frame of reference. Comparing with someone perceived as less able in order to enhance feelings about the self provides evidence in support of Wills (1981). Wills (1981) states that people compare with less able others on a particular dimension in order to feel superiority over the target which in turn enhances feelings about one's own ability. For example, comparisons with less able others were often mentioned in relation to ability and this indirectly served to boost confidence. The following quotes are examples from two of the participants:

> Participant 13. **so you look at them and say what they can do more than me?** Yeah, I'm not, I'm not jealous really, because **they work out how good you are?** Yeah, well, not really, I just kind of, I just look at other people and think wow, I know I'm not as bad as some people, some of them can't do swivel hips

> Participant 21. **does it make you feel happy, sad, depressed, jealous that they're better than you, it might be different when you compare with people that are better than you and people who are worse, but?** …when you compare yourself with someone who's not as good as you, you feel like oh yeah I've got something that I'm actually like good at, and um, you know even if it's not very nice to say oh yeah I'm better than you, you don't say that, you just think it, so, um, but that makes you feel quite good, at the opposite end of the scale

Unknown/unintentional.

This theme was developed to encompass the comparisons that the participants could identify as having engaged in, but not knowing the root cause of the comparisons that they were making. This pattern was one of the most interesting for me as a researcher because it suggests that children in the same way as adults compare with others, but may not always be aware of the motive or have intentional reasons for comparing with others. This finding supports previous research by Wood et al. (2000) which suggests that comparisons may be spontaneous and not always under our conscious control and extends previous research by demonstrating that this also occurs for children as well as adults and in a physical context. Furthermore, this pattern highlights the complexity of studying comparison processes because it shows that although individuals may be aware of comparing, the precursor to the comparison may be consciously inexplicable which makes researching this area difficult but interesting. The example below is taken from the round one interview with Participant 18 where she was discussing comparing with a group of her friends.

> Participant 18. **when you say match, do you mean within your class or do you mean your class?** in our class, **okay, and why do you think that you compare with each other do you think?** I don't know, it's just that we've done it since year seven, so**…**like we just, I don't know

Avoidance of comparisons.

In contrast to expressing a desire to compare for a specific reason, a pattern concerning the avoidance of comparisons was also identified. Previous research (Butler, 1992) proposed that children may avoid comparisons so that confirmation of poor ability from such a comparison is not provided. There was some evidence to support Butler's (1992) findings, however, reference to avoiding comparing with others that were too far away in distance i.e. the best in the class were also made because these were deemed pointless. One explanation that might explain these findings is that PE is an achievement environment which might be perceived as a threatening setting which could have led to the avoidance of comparisons (Wheeler & Miyake, 1992).

Alternatively avoidance was characterised by a style of self-evaluation that tended to be self-referenced with a general avoidance of comparing with others. Avoidance of

comparison with others who were perceived as worse off than the comparer - due to the perception that these comparisons were pointless - were also coded under this theme. The quote below from Participant 18 provides an example of avoidance of comparison with an individual who was perceived as much higher in ability that the comparer:

> **do you ever compare yourself with the girl that's a lot faster than you?** no, **why do you think you don't compare yourself with?** um, because like, she's more healthier and everything, and she can like, she does more running than me, so she's, can get better, but, I enjoy other sports

Frames of Reference

External frames of references were focused on in both the interviews and analysis stages of the study. The interviews and analysis were originally guided by Skaalvik and Skaalvik's (2002) frames of reference for academic self-concept in addition to findings from previous research in PE (Chanal et al. 2005; Chanal & Sarrazin, 2007) and that by Lubbers et al. (2009) on friendship. The results of this qualitative study supported the findings from Chanal and Sarrazin (2007) and Chanal et al. (2005) where both small groups and individuals were referent groups that were seen as patterns in the data. Furthermore, friends were also cited very frequently as a frame of reference partially supporting the work by Lubbers et al. (2009). There were substantial differences between the findings from this study and the frames proposed by Skaalvik and Skaalvik (2002). This may be because Skaalvik and Skaalvik (2002) proposed the frames with reference to academic self-concept which may be a much more widely informed self-perception. One of the main differences was an overarching theme - that became clear very quickly at the interview stage - which was availability of target for comparison.

Specifically, frames of reference were considered available and used for comparison (active) only when the standard was actually present in a particular situation i.e. when in PE, targets also in the class were identified as comparison standards, but this frame of reference would lose its importance in another context for example at a club i.e. there was no cross context effect. Frames of reference not active within the PE class included the school average ability and individuals outside of the class which were frames of reference initially proposed by Skaalvik and Skaalvik (2002). This need for the target to be present was termed *'available and active in PE'*. The purpose of this qualitative study was to explore social comparison in PE, therefore, the themes developed during analysis which were subsequently categorised into 'not active in the PE class' are detailed in Table 3.4 with examples of data which led to this theme, but these results are not discussed in any further detail in this results section.

Table 3.4.

Frames of Reference Active Outside the PE Class

Year/half year group: Participants were able to attempt to measure their ability within their year and half year. This was usually through summing up ability compared to half the year as described by Participant 6 below, so it would seem that the year and half year are informative, but not comparative standards that children are really bothered by or think about on a regular basis.

> Participant 6 - **so when you do inter-house is it just the different sides of the year?** It's just like 5 houses, like Green, Red, Blue, Purple and Orange and they like play against each other, **ok and that's across the year group?** Yeah **so you play against everyone in the year in that situation?** Oh no just on the F side, so play against the F side, the F side play against the F side houses and the g side play against the g side houses, **oh right ok, so you don't actually, so if I asked you how good you were in comparison to your whole year at sport,** yeah **would you be able to tell me?** yeah I think I'm one of the best coz, the F side are kind of the best at sport, I think, **ok why do you think that?** coz they got like the most, so me and my friend we are always of the top of everything as well and the school football team **ok then** yeah **and people on the other side don't?** no not really, there's a couple of them, but most of them on the school football team and like good people, like rugby team and everything are on the f side basically **oh ok then** from the F side.

School: The school was a frame of reference that was investigated based on previous research (Skaalvik & Skaalvik, 2002). Little evidence was found to support the 'school' as a frame of reference or a standard that children used to assess their ability. Only one participant was able to roughly guess that he was the best in the school and even then did not appear particularly interested in this knowledge.

Club: Many of the participants participated in sports clubs both at school and outside of the school environment. Comparisons discussed with reference to clubs usually related to the particular context i.e. comparisons made and outcomes were relevant to that context and repercussions were not felt across contexts. Participant 3 describes her comparisons at a football club. Her narrative included many references to comparisons at her club, and hers like many others were never related back to PE or seen to affect thoughts about ability in PE.

> Participant 3 - **we were talking about…your football club, you said that you, you, you compare with them in certain exercises?** yeah **can you tell me a little bit more about which exercise you might compare in?** um because, because I'm a defender **yeah** so I normally pair up with attackers, like, like, so like, not, sort of get their tactics, but I sort of read their game, what foot they take their first touch with and like **oh ok** and what foot I should close in on, stuff like that

Friends: Participants discussed comparing with friends during lunchtime whilst playing in the playground and at home or friends' houses when with friends. Participant 19 describes comparisons with her friends outside of the school context.

> Participant 19 - **what about outside of the PE lesson, are there any people that you think you compare with? Siblings, friends?** um, I don't have any brothers and sisters, um, one of my best friends, she is in [X side of the year], but I don't have any lessons with her, but she, she does long distance running, she was second in the

> county for a couple of years, and she's really good at it, and I like, I look at her and maybe like try and aim for bigger goals, because she runs a lot, so, um, also my friend who is in [Y side of the year]...she's the same, she does a lot of the long distance running, because they're twins, they do it together, so, **oh right** aim to like get better, **and when you say aim to get better, can you just explain what you mean by that?** because they run quite well, they don't get worn out quite easily, I tried to do a lot, a bit more exercise, so I don't get is worn out as quickly, and run a bit more, **so when you say you try to do a bit more exercise, do you mean after-school, out of school?** out of school as well, like um, I do, I do walking as well, um, and I, we've got quite a big garden, so I'll just like run around there, and you know, mess around outside as well

Siblings: Comparing with brothers and sisters was a pattern which cut across participants whether good or bad at sports. It seems that comparing with siblings is a common process that young people engage in, however, this does not serve to influence behaviours or emotions within PE.

> Participant 10 - **they're not necessarily in your PE class?** No **okay** there'll be like, um, sometimes I compare myself to my brother, now and again, because um, he is very good at swimming, and um, he was always kind of been, he's like me, he's always going to be good at sport, it doesn't really matter, which sport is, he's obviously kind of going to be good at it, so I try not to compare myself, to other people because, they're not really good

Class-average ability is named as a reference standard by Skaalvik and Skaalvik (2002) although it is usually operationalized by Marsh and colleagues as an objective measure of average grade score. Class average when referred to in the following results section, however, does not refer to an average grade score, but rather to the participants' perception of the 'class average' ability. One of the reasons for conducting a qualitative study was to identify if students were aware of a class average ability or average grade or not, given the wealth of research (e.g. Blanton et al., 2001; Huguet et al., 2009; Marsh & Hau, 2003) which suggests the class - grade - average has an influential role in determining levels of self-concept.

This pattern, whereby a frame of reference was needed to be present/available in order for it to then be used (active) in PE is demonstrated in the example below which details a narrative typical of the data. In addition to this, the example below also demonstrates the participant's lack of knowledge of her ability within her own year group, let alone the school. The extract below is an interview extract from interview one with Participant 7:

> **do you know how good you are across your whole year?** Not really, coz we, we're mainly only on like one side…and we don't really like do much sport with the other side unless it's like sports day…**do you think about it at sports day?** no coz like I'm not used to seeing people like that **…where do you rank in your year group?** I'd probably say in the middle, coz I don't really know what the Y side are like

Furthermore, there was no evidence to suggest that a lack of knowledge about ability within the year group was in any way problematic to participants, rather, that the class was the key referent standard used by participants as highlighted by Participant 20:

> **do you make comparisons like that with people outside of your PE class you think?** um, no not really, coz, I concentrate on my lesson, that I'm in, I don't concentrate, oh look there's Jimmy doing hurdles or whatever, er, I concentrate on my lesson and my lesson only so, I can, improve on my posture whatever, um, so then I don't really compare myself to anyone in [side of year X], because I don't get to see them play sport, and in [side of year Y] I don't really compare myself to anyone apart from people in my PE group, or if we join groups and we do relay or something, um, but I don't really compare myself to other people outside, my PE group

Overall, it appears that children make comparisons in the presence of others, but are less interested in how they rank in the wider context. Broadly speaking, this suggests that individuals outside of the class or a within a particular setting were not seen to inform how an individual perceived themselves in a different context. For example, a child in PE would describe using class members who were present for comparison rather than individuals at an after school club. However, at club practice individuals present became the 'active' frames of reference. Given this finding, and the fact that this thesis is concerned with social comparison within PE, the results section for frames of reference focuses on those which were deemed active within the PE class.

Active frames of reference in PE.

Themes encompassing targets that were active in PE were further characterised as either *'forced'* or *'chosen'*. Forced targets were those which were deemed inescapable for the individual and even when the participant declared not overtly comparing with a forced target, indirect inferences about these referents were made. Chosen targets in contrast were those that an individual consciously decided to compare with. In these instances, a reason for comparing was often related to or interpreted to underlie these comparisons. In order to reflect this, interrelationships between motive themes and frames of reference are dealt with collectively in this part of the results section. Forced and chosen, were not two themes that I started out with or used as part of the initial analysis process, but were formed later in analysis as I began to mind map and look at high order themes within the data (See Table 3.5 for an outline of themes formed encompassing frames of reference).

Forced comparison standards.

These targets included any comparison standard that was deemed inescapable to participants, whether that be the overwhelming sense of 'the class', to individual comparisons enforced by teachers upon the students. The following subsections describe in more detail

these comparisons taking each of the following themes in turn; ‘the class’; teacher role; individuals; national average.

The class.

Overall, ‘the class’ was the dominant reference target which participants mentioned frequently, either with specific references to it or in general discussion about position in the class, without actually stating the class itself as a comparison standard. This theme was found across the entire data set. Although the form of ‘the class’ varied (how it was split up into ability groups for example) between participants it was clear that this was a referent group that appeared repeatedly with participants choosing to compare with *all* of their classmates, but on a broad and general level. Knowing one’s ability within the class was something that the children could define; however, when asked to articulate how they were able to determine this, they were able to suggest various ways that this understanding might come about. The first was ‘the scan’ which was literally characterised by participants describing having a general look around the class. This scan could be interpreted as a series of multiple comparisons which result in an overall assessment of ability within the class. This is clearly the authors interpretation of the processes which occurred - however it does seem to explain the participants’ behaviours and suggests that children like to know their place in the class. As demonstrated by Participant 22:

> **do you like to know where you are in a class, or is it not something that you really care about?** I don't overly care, um, but it's useful to know **why do you think it's useful to know?** long pause, I don't really know, just, think it’s more useful than not knowing, but it isn't necessary

In addition to the general class scan, participants were capable of discussing the class average. Given the volume of research relating to class (grade) average and self-concept (Huguet et al., 2009; Marsh et al. 2008) it had been expected that the results would show that adolescents were very aware of the average class (grade) ability level. The class average was not characterised by knowledge of an average grade but a perception of an average ability that participants were able discuss and use as a referent point. It appears, that adolescents subconsciously evaluate their ability on a frequent basis and possess the ability to weigh up and deduce their relative place compared to ‘the class average’ even when grade data are not readily available.

The ability to characterise oneself compared to the average was a re-occurring theme across the data set, and through the process of analysis, it became clear that there were two groups which individuals selected themselves into, above average or below average. To try and represent the data in a coherent manner through the process of mind mapping, it became

Table 3.5

Themes and Sub-themes for Frames of Reference Active in the PE Class

Theme	Sub-theme	Sub-theme	Sub-theme
Forced target	Class	The scan	
		Sense of the class as a whole and rank within class	
		Class average	
	Individual	Partner for exercises and evaluation	
		Example either person in class or video clip	
Chosen target	Individual	Direction neutral	Friend
		Direction Related - Upward	More able
			Best person present
		Direction Related – Lateral	Similar ability
		Direction Related – Downward	Less able
	Small group		
	National average	Grades attained	

clear that this distinction was important and that the 'domino effect' (Saldaña, 2011) or respective consequences of placing oneself in either of these two groups followed on from this initial categorisation of the self (one's ability). An example of the class as a frame of reference, but divided up into groups in the participant's own way is provided below by Participant 6:

> **do you feel that there is a class average in your PE class?** Um I'm not sure really **yeah** I think there's kind of people that are like elite and then there's people in the middle and then there's people at the bottom, so it's like split into groups really **ok then and where do you see yourself?** Not being big headed, but I think I'm at the top

Teacher Role.

This theme represents the responsibilities and role of teachers in shaping the comparison environment and certain comparison behaviours in PE lessons. This occurred through the use of certain teaching practices as Participant 19 describes in the extract below. This finding ties in with both motivational climate research (Ames, 1992) which advocates the importance of the learning environment - which is heavily influenced by teacher practices – and goal research (Butler, 1992) which found that comparison behaviours were dependent on goal orientation. The importance of social agents (teachers) as both comparison standards

and in forcing certain comparisons on others highlights the need to educate teachers on how their practices can play a role in children's comparisons and that they should first consider both the positive and negative outcomes of comparison before putting children in certain situations and asking them to make certain comparisons.

> **do you compare do you think with your PE class as like a whole group? like try and work out say where you are within the class?** (long pause) yeah, sometimes **when do you think you might do that?** well, um, near the end of um, the, PE session sometimes, um, the teacher tells us, where do you think you are on the level ladder, and we stand in different groups, it's just our opinion, um, where we are
>
> *Individuals.*

In several instances within the PE class, participants were forced into certain situations by their teachers which resulted in engagement in comparisons with individuals in the lesson. These included using a class demonstrator (another pupil or teacher), showing video clips of how skills should be done and pairing students up to work on a task. Participants 20 and 18 below provide examples of evaluation with partners in class through processes initiated by the teacher. Furthermore, participants were also frequently forced into comparisons by discussions with a peer through the following phrase, "this is my grade, what did you get?" This highlights the important role that others can play in forcing comparisons and indicates that comparison may be a passive reaction as well as an active pursuit by individuals.

> Participant 18: **do you get feedback from your teachers in PE?** Yeah **and is it a group feedback, or is it personal feedback?** Um, feedback, it's like group like, we'll, talk, to each other in partners and we'll say what we've done well and what we need to improve on, **okay** and then, we'll have a match and try, improve what we need to, **okay and how do you feel when you get that feedback occasionally?** Okay coz, I would already know, like, what I need to improve on, um so **so you think that's useful then? Because it tells you what you need to improve on?** Yeah
>
> *National average.*

Comparing with the national curriculum average for one's age group was a pattern apparent in one school and not the other, again highlighting the forced nature of this standard and how the circumstances provided by a school can influence the comparison standards available and active for children. The school where participants described comparing their PE grade with the national average was one where the national average was made salient to the pupils by the teachers at the school, in comparison, participants from the other school did not seem aware of a national average and did not make reference to it unless asked specifically about it and even then they could not articulate what that would be. Participant 1 describes her comparison with the national average in the following quote. This narrative was seen

across cases within School 1:

> **what about to validate how good you are, say like to confirm that you, how good you think you are?** um obviously usually I think I'm quite good, in sports, I'm higher than the average sort of score that supposed to be um. It's like um, which then of course, obviously like much more upset when I don't, um, but that's how I, that sort of like how I feel **okay** because I think that the amount of effort I put in, I kind of feel that I should succeed in a way **okay…how do you, so the school tells you that the average is level 4?** yeah, **so that's what you compare against?** yeah and I need to get higher than that, that's what I compare to, **and so how do you feel if you're better than the average?** if I'm better than that it makes me feel really pleased obviously coz I've then achieved what I want to achieve, **ok,** and if I achieve what I want to achieve it obviously makes you, me, feel um, like I've done it, I've succeeded I've done what I want to do, great, **what about if you?** if I don't, then, obviously I'll feel down a bit, and think right jus try harder and see if that works…**and that's this is the national average, which we are talking now about, the class average, or?** I was more sort of like talking about the normal national curriculum average

Chosen targets.

This theme was developed in order to encompass the frames of reference that individuals chose to compare with in PE lessons. These standards were either individuals or a small group of individuals within the class. In most instances the motive for comparing with the target could be determined or inferred, however, in a few instances the motive for comparison was not always clear. These relationships between motives and target again highlight interrelationships (Saldaña, 2011) between the patterns in this data set and highlight the complexity of the comparison process. The following subsections discuss targets utilised in combination with a direction of comparison and then a discussion of targets identified not in relation to the direction of comparison.

Individuals.

There were two over-arching themes which encompassed the individuals children chose to compare with. These were 'direction related' and 'direction neutral'. Direction related included three sub-themes; a more able other (upward); a similarly able person (lateral); a lower ability target (downward). Each theme is discussed in turn in the following sub-sections.

More able other (upward comparison). Upward targets could be further divided into two patterns. The first was termed 'the best person present' which related to the switching of the comparison target depending who was evaluated as the 'best' at each sport or exercise. An example of comparing with the best person in each sport is given below from Participant 1:

> **so have you got any maybe friends in other classes that you think about or is it very focused on PE?** Um, I'm not sure I don't really think about the other classes to be honest coz there's no one there that I know of who would be in a decent

> competitive range of me **ok** so um I kind of just focus on the best in my class at the time and then, coz that's all the people that I'll usually be up against at least, so I usually just focus on them, coz I don't really know many people in the other classes,… **so when you said you compare to the best people in the class,** yes, **are they girls and boys or?** It depends on who's the best, if the boys the best then I'll compare myself to them, **yeah,** even though they're the opposite gender, but I don't really see that as a difference, I don't know why, I mean they've always told me that the boys are supposed to be better, but I kind of think well, I, don't see why I can't do it either

The second was any individual that was identified as more able than the comparer. This pattern of more able individuals being chosen for comparison supports Festinger's (1954) hypothesis on abilities and a uni-directional drive upward which would suggest that the best person present or a better off individual would be a useful source for comparison as they provide the information needed to improve performance. Additionally, when looking at interrelationships of themes, a distinct pattern which emerged was the link between the motive to improve and choice of comparison with upward targets.

In the context of previous research, this study supports that of Wood et al. (2000) by suggesting that children engage in upward comparisons which are related to the desire to improve i.e. the children compare because they want to learn how to raise their own ability level. Additionally, there was also the propensity for individuals to believe that they could achieve the same as the comparison standard; this tendency in the past (Collins, 1996) has been linked to the motive to self-enhance and additionally comparing upward may also be used as a way to evaluate one's own ability compared to a particular other. In most instances in this study, however, comparing upward was usually associated with a desire to self-improve. The following quote from Participant17 highlights the change in target depending on the sport and how this is linked to her motive for comparison:

> **so that you can try and see if you're better than them or how you can improve?** Mainly in football I try to compare so then I can try and improve my grade, because they're more experienced in football than I am, so um yeah, but in like sports like netball, then I can like learn from, how I shouldn't like coz most of the boys do footwork when they catch the ball, so I can learn from how they do things and improve mine…more like individual people instead of the whole entire group, coz everybody's like different abilities…for like the girls sports, like netball or rounders, mainly girls play that, I usually compare myself with the girls, but then in sports like football I'll usually like compare myself to individual like boys because they've, they've got the highest grades in the group so I'll usually compare with them

Similar ability (lateral comparison). The pattern of responses regarding individuals perceived as similar in ability became evident quite soon into the analysis phase. Similar individuals were in many cases also indicated as friends, however, in other instances they were simply

other individuals within the class. The choice of a similar target is not surprising given Festinger's (1954) hypothesis and Duquin's (1980) research on similarity. The reason why these individuals were chosen, however, was unclear. There was no clear interrelationship between the perception of the target being similar and a motive for comparison. Two quotes from interviews with participants 10 and 20 are provided below to illustrate these points:

> Participant 20: **thinking about sort of like within your PE class, are there any like specific people that you think you compare yourself with different sports?** um, not really, coz, there's different people good, do well at different sports, and so like in tennis, coz I don't compare myself in tennis, I set myself a PB, so in this lesson I want to, win a game, or, in this lesson I want to go to serve properly, but I don't, if I was to compare to someone I'd probably compared to someone of similar age, similar size, similar abilities to me in the sport, um, but, coming back to swimming, in swimming and there's not really any one to compare to, so it's just me and my own boat

> Participant 10: …Similar ability or just above works best **so just talking generally about PE then? If someone said to you, do you make any comparisons with anyone at all within PE what would you say?** I'd probably say, yes I make comparisons with my friends who are around the same level as me

Lower ability (downward comparison). Finally with regards to direction related targets, worse off individuals were less frequently described, but when talked of, often were discussed in relation to a desire to feel better about oneself defined earlier in this chapter as the motive to enhance. i.e. comparing with a less able individual in order to enhance feelings about the self. This was summed up by Participant 17:

> **do the comparisons you make ever have an effect on…how you feel about yourself?** Um, er, like comparisons with some of the like, for a sport like netball or rounders if I'm like comparing it to people like lower in the group then it usually makes me more confident, confident because I can like, I'm, I'm performing better than them so I feel better about how I've just like either caught the ball or scored, or footwork

Direction neutral. This theme was developed to encompass any individual target who was not related by the participants to a particular direction of comparison. Friends are one example of this and although friendship has been discussed previously in this chapter, it warrants mention here because it was a prevalent comparison standard indicated by the children in the study. Additionally, targets discussed without a direction indicated were few and far between and when done so nearly always about a friend. This theme, therefore, represents instances where classification into a direction related target group was not possible. This highlights the complexity of the comparison process when attempting to unpick and understand how various parts of the comparison process operate in conjunction with one another.

Small group.

This pattern was identified by participants indicating comparing with a group of individuals within their class. This group characteristically would be a small number of three or four friends which the individuals would use to compare their ability against. This supports the work of Chanal and Sarrazin (2007) who found that when children were able to name multiple comparison targets they often did so. Participant 16 provides an example of a participant describing comparing with a group of individuals:

> **is there anyone within your PE classes that you think you? …**there's a lot like a group of us in my PE which helps, so if its group work, we'll usually work together coz it's like, if it's like a similar ability we're all pretty similar **at all, at the different sports that you play?** um I'd say I was stronger at football than them, but cricket we're all pretty similar…**would you compare your grades with them?** yeah usually, because, it's usually close… if its say cricket which I might get 21 and they might get 22 or 20, um then we'll compare it sort of thing **ok and what do you sort of, why, why are you doing that do you think?** Just because we always want to see who's better really, coz it's like a pride thing

Friendship – does it have a role to play?

Friendship has previously (Lubbers et al., 2009) been utilised as a motive for comparison in addition to Helgeson and Mickleson (1995) suggesting that common bond may be a motive for comparison. However within this qualitative piece, although participants suggested comparing with others because the target was 'a friend', it became clear very early on in the interviewing stage, that although friendship was a reason given and friends were often chosen as comparison standards, this was usually in combination with the perception that the friend was of a similar ability as Participant 3 describes, "**are there certain people within your class that you compare with?** Yeah I normally compare with my best friend Jenny, she is one of the best people in our class, so we are equal ability, so I nearly always compare with her". Quotations such as this resulted in the author beginning to question whether friendship or similarity was the key for choice of comparison target and whether friendship was actually a motive for comparison at all. To try to understand which participants believed came first or why they compared with a friend because of friendship, similar comparative ability or another reason, specific questions were formulated by the author where participants were asked to clarify why they chose the particular individual. This process unfortunately this did not prove particularly useful in understanding why friends were chosen. For example in the second interview with Participant 4 when discussing the comparison of PE grades, the following conversation occurred:

> **is the reason that you compare with him because he's is a similar standard to you or is it that because he's your friend?** He's my friend and um, well, he, he used to be

higher, I asked what he got and I told him what I got, **so it's just because he's your friend that you asked him?** Yeah

As one can see from this quotation, a reference to both ability and friendship are made. Given that there were many instance like this, it was decided that friendship would not be proposed as a motive for comparison, but instead that 'a friend' would be considered a target for comparison. Additionally, although the pattern across the data set suggests that participants seemed to believe that friendship came first and that this was the driver for comparison rather than ability, it could be argued that sub-conscious evaluative comparisons may have led to the friendship forming in the first place because the target individual was of a similar standard. This pattern led the author back to an old proverb which was first printed in the 1599 English version of '*The Dictionarie' in Spanish and English* "Birdes of a feather will flocke togither." (Minsheu, 1599) which supports the idea that those who are similar group together. Furthermore, Festinger (1954) originally hypothesised that "the tendency to compare oneself with some specific person decreases as the difference between his opinion and ability and one's own increases" which again provides weight to the argument that similarity in ability to the standard may in some cases drive the comparison target choice rather than friendship.

Although understanding the determinants of friendship was not a central aim of this thesis, it appears to be wrapped up with the frames of reference children use not only in PE, but also in other situations (Lubbers et al., 2009). Given the numerous references to friends as comparison standards across the data set and in the same sentence, similarity in ability, it was a finding which I felt was important to highlight as it also gives context to any remaining results which refer to friendship. It also means that we cannot draw firm conclusions from the data that relates to frames of reference and friendship and only suggest that for this data set both friendship and similarity were inter-twined. [9]

Summary of frames of reference.

Drawing the results for frames of reference together, we can see that young people engage in comparisons with multiple targets during their PE lessons. Some of these are forced upon the children and others are chosen by them. This demonstrates that adolescents will, even when an objective standard such as the national average is available, still seek out

[9] Author Reflection: Again this highlights the researcher role in the research and analysis process by reporting findings that seemed important to the author's overall perception of the data set and the understanding of the context in which the rest of the frames of reference sit.

subjective information about their ability. Given that there is a clear distinction between forced and chosen targets, it seems important to suggest that future research continues to explore these differences and if comparisons with different frames of reference interplay and interact or if any particular frame of reference is the most important in determining certain consequences. For example, are comparisons with the class or individuals more influential in predicting outcomes?

Consequences of Comparison

There were many themes created during the analysis process that represented various consequences of comparison. During the analysis process it became clear that a number of the consequences were linked with comparison in a particular direction (upwards or downwards) and in some cases also with a specific frame of reference. In particular there were two over-arching themes with specific 'domino effects' (Saldaña, 2011). These two over-arching themes were named 'low perceived relative standing' (LPRS; upward comparison) and 'high perceived relative standing' (HPRS; downward comparison). These terms have been used (Huguet et al., 2009) previously to categorise individuals who rank their ability level on a Likert-type scale whereas in the present study these themes represent a participants expression of their ability or a level (higher or lower) inferred by me from the participant description. For example, if a participant said 'he was better than me' that instance would have been grouped under low perceived relative standing.

The dominant frame of reference linked with consequence themes was 'the class' although individuals were also identified as targets linked with specific outcomes. The following sections detail consequences linked with low and high perceived relative standing. The results that follow are not an exhaustive list of possible consequences and represent those themes that were common in this data set. Given the limited knowledge that has been previously discussed regarding consequences of comparisons in PE, most of the analysis examining consequences was inductive; however, where possible, previous research is drawn on to discuss the results of the present study. Where interrelationships between direction, frame of reference and consequence were identified, these are indicated and discussed together. Before the results section moves on to discuss low perceived relative standing (LPRS) and then high perceived relative standing (HPRS), a theme concerning the importance of the class will first be discussed. This theme was named 'class constrains what is achievable'.

Class constrains what is achievable.

This theme was developed to represent the importance of the class in restraining what adolescents believe is possible for them to achieve. This theme consists of two sub-themes, the first, that the top of the class is the highest achievable level which constrains aspiration, i.e. nowhere to go from here, so there is no inspiration or drive to get better and improve as the quote from Participant 20 below demonstrates:

> **so you don't like need to work on anything, can you explain that a little bit to me what you might have meant?** well um, think, when I get high grade, like sometimes I feel, like, um, I don't I feel like, just, try harder, or maybe just like don't worry about anything, coz I got I think, if I get the highest, I can't get any higher, then I just like, um, relax

The second is that individuals believe that they are never going to be as good as the others in the class, therefore, their aspiration to improve is constrained to believing that they will never get any better. These findings extend previous research because they highlight the important (powerful) influence that the class may have on individuals' aspiration and stress the need for future research which examines the strength of relationships between comparative ability compared to the class and other frames of reference. i.e. is the class the most important/powerful target in determining social comparison outcomes in PE?

Low perceived relative standing.

This overarching theme encompasses all the comparisons and sub-themes where the individual believed that the target was of higher ability than themselves (the comparer). The following sub-sections take various themes and sub-themes which can all be categorised under LPRS. Within this section, LPRS in class is discussed first with interrelated themes. Following this is a more general discussion of consequences of LPRS which are related to both individual and class level comparisons (See Table 3.6).

Low perceived relative standing in class.

This theme was developed in order to categorise all the instances of individuals believing that they were worse than the 'average' ability of the class or most others in their PE class. Although participants were generally asked about frames of reference, the class seemed to be the dominant provider of information about the self and perceived ability in PE. The main theme interrelated with this was 'perceived influence of others behaviour' which consisted of the sub-theme exclusion due to lack of ability. This pattern (exclusion due to lack of ability) became apparent as the interviews proceeded and was one which had not been considered before the process of interviewing began. This theme represents the feeling of exclusion that participants believed was resultant of their poor ability compared to the rest of

the class. This exclusion was felt because of the behaviour of other members of the class and not a personal choice to opt-out of activity participation. An example of this is given by Participant 19 and 14 below:

> **okay, so when they play basketball, do they, what happened, can you explain it to me?** I shouted to them to pass me the ball as I was in the space, but sometimes they just completely ignored me and passed it to someone else who's…they think we can't play sports **do they say that you…Or why do you think they think that?** um, it's, it's just like um, sometimes like they say it, other times you just kind of think that they're thinking that
>
> Participant 14: **can you explain to me why you think it's boring?** Um, coz, people in my team don't really pass it to me and stuff, and just pass it to the boys in the team

Team sports were often responsible for this feeling of exclusion which occurred frequently within game situations. A number of consequences stemming from this perception of exclusion were highlighted during the interviews and analysis stages. The first was 'withdrawal of effort', this was characterised by a literal withdrawal of effort on a task, or the actually stopping and quitting of a particular task whenever possible. The second that enjoyment was taken away from the individuals because of this exclusion. The two sub-patterns could also be inter-related as lack of enjoyment could interact with withdrawal of effort and vice-versa. As far I am aware, this is the first piece of research which has specifically found an interrelationship between perceptions of how others treat an individual and perceived ability in the class. This demonstrates how social comparisons help to inform and assist individuals in evaluating their experiences and how others treat them i.e. the exclusion is perceived to result from a lack of ability which is inferred through social comparison itself. The extract provided below reflects this theme of exclusion and the consequences that the participants relate to this exclusion.

> Participant 21: **we were talking about why, why you don't enjoy rugby and stuff, because people..** No they yeah yeah, because like you don't get included as much, if you're not as good, and if, and when people see that you're like, not as strong, they'll pass you even less, coz I, I don't personally like, tackling or anything, um, I don't like tackling in hockey, I just try and get myself out of the way most of the time

Positive influences of low perceived relative standing.

Although there were a number of negative patterns related to low perceived relative standing there were also two positive themes identified as being influenced by perceiving oneself as worse off than others. First and foremost, when individuals who believed they were relatively unable within the class were chosen to pick a team, they would choose other unable individuals to be on their team as they could understand what it felt like to be left until last. Secondly, *some* individuals who were low in ability would see other class members as

Table 3.6

Consequences of Comparison: Themes and Sub-themes when the Highest Order Theme is Low Perceived Relative Standing

Theme	Sub-theme	Sub-theme
Perceived influence of 'Others' behaviour	Exclusion - belief that you are excluded due to lack of ability	Withdrawal of effort/stop/quit sport
		Others exclude you takes away enjoyment
		Team games are much worse than individual sports
Positive consequences	Include or pick less able for your team	
	Inspiration	motivation to work harder
Negative consequences	Ridiculed by others	Lack of enjoyment and annoyance from others being mean/unfair
		Lack of desire to compete
		Put off participating outside of the lesson
		Bear the brunt of jokes
	Self-perception	Self-conscious
		Self-confidence decreases
	Avoidance motivated behaviour	Increased on task behaviour as want to avoid being the worst in the class
		Try to avoid ridicule
	Disengagement in Physical Education	Withdrawal of effort
		Lack of persistence
		Messing about with friends
		Joke with friends to shrug off bad performance
		Stop listening to the teachers
		Disinterested in the sport or joining in
	Negative affect	Embarrassed
		Jealousy/Annoyed
	Disengagement outside of PE lesson	Loss of interest
		Do not believe ability is good enough to engage in sport outside of lesson

inspiring which would result in motivation to work harder although this was not a pattern across all cases. Although this is speculative, whether an individual was inspired or not by comparing with a more able individual could have been related to the amount of ridicule received from others or possibly how able the participants were at other sports i.e. can they shrug off the failure and ridicule? These suggestions remain hypothetical and need future research to assess whether this speculation is in fact correct. These findings extend previous research by providing evidence for positive influences of social comparison even when the perception of one's ability is lower than the target. Examples of the positive influences of low perceived ability are given below:

> Participant 21: **you would be free and be the free one standing there, but no they pass it to her, but she's got like 10 people on her and I'm all on my own…**then the good players, think oh people aren't as good as me, so they just go out on their own, and don't give other people the chance, I try to do when I'm playing, it's like, um, if I'm like, say captain of like a team, if I get elected captain, and pick players, I don't just pick like the best players, because, I pick like, whereas I pick good qualities, like team player or something, like good at commitment and spirit and stuff, oh, I'll pick the good players of course, if there is a player who were like, players who will play as a team, you will give everyone a chance

Furthermore, there was also a pattern identified when individuals made upward comparisons with others which was termed 'inspiration'. This was characterised by individuals wanting to achieve the higher level of performance which in many instances was inter-related with the forming of a goal to improve as demonstrated by participants 5 and 2:

> **so when you're looking at what you're weak at and what you're strong at, um, did you have a like, did you have something that you were thinking of, or this is how I'm supposed to do it like the teacher or?** yeah I just try to do it like, um, there was a person in my class who plays (county) hockey so I thought they're pretty good so I'll try and do some things like them and asked them for a bit of advice as well
>
> Participant 2: **you'd be in mixed ability sets this year for the whole year?** Yeah **and how have you found that?...**it's good having people worse than you and people better than you, in a way **why do you think that's good?**...because you know who you wanna beat and you know who you know…who you wanna get better than

Negative influences of low perceived relative standing.

There were a number of negative influences of low perceived relative standing which have been grouped into seven themes. These are; ridicule by others; self-perception; avoidance motivated behaviour; disengagement; negative affect/feelings; disengage outside of PE class. The theme 'ridiculed by others' was developed to encompass the data which referred to participants feeling ridiculed or being joked about by their classmates - friend or

foe - because of perceived poor ability in the class or compared to a small group or individuals. Within this theme, there were certain outcomes which participants articulated as relating to the ridicule including, enjoyment, desire to compete and participation outside of the lesson. It appears that for low ability individuals who already know that they are relatively bad at sport, having others make fun of their ability only served to decrease levels of enjoyment and increase levels of annoyance with others who were perceived to be mean or unfair. Furthermore, individuals who might once have wanted to take part in competitive sports indicated a subsequent lack of desire to compete and also a decreased interest in sports participation outside of the PE class. An example of this ridicule or "joking about" is given by Participant 23:

> Participant 23: **are there any particular people, in the class maybe a best friend who you compare to all the time?** yeah, like, my good friends, they're in, they're in all of my PE lessons, I always compare myself to them, because there's four of us and there's always one of us who's better and then you try and be better than them, and show them up, in sort of a jokey way, but yeah, I always compare myself to my friends **okay and what sort of things are you comparing with them ?**like, in say, tennis, if you didn't get it, and sort of do a backhand one and stuff like that, but if you lose it, if you hit it in the net, they sort to make a joke about you're you're rubbish, and then you try and not be rubbish, so you can be the one making the joke, rather than being the joke

Data within the extract above was also used in the formation of the theme titled 'avoidance motivated behaviour' which was characterised by individuals engaging in certain behaviours to try to avoid bearing the brunt of jokes and cease their suffering at the hands of their classmates. This might see pupils attempting to avoid ridicule by engaging in on-task behaviours and attempting to be better than their friends or classmates to make sure that the comparer was not the worst person in the class.

Self-perception was another outcome theme which was interrelated with LPRS which itself was formed from two sub-themes which included self-consciousness and self-confidence. With reference to self-consciousness, participants who had low perceived relative standing would sometimes articulate feeling self-conscious in their PE lessons for example:

> Participant 19: **do you think when you see people do better than you it has an effect on how you feel** yeah **about different things?** Yeah it probably does like, if a lot of people can do stuff, I can't do gymnastics very well, can't really do forward roll or anything like that, so I think most people can, it makes me feel a bit like self-conscious **self-conscious? okay why is it make you feel self-conscious?** Just a little bit, because everyone else can do it and I can't **okay so you so you mean by that what do you look around the class?** Yeah **yeah so that would be you'd see everyone else can do it and you can't?** yeah

– whereas others might see their low perceived relative standing relating to a decrease in self-confidence:

> Participant 23: **playing defence…how does it affect you emotionally, in your confidence, things like that do you think?** um, you sort of, coz when you're in defence, the ball never really comes to you, if you have good people on your team and so you stand in the back, and you sort of like watch them play, but you feel like you wish you were good, so, then you get like some, sort of jealous, but sort of like knocks your confidence, because they're like, really good

Disengagement was an overarching concept formed from a number of sub-themes; withdrawal of effort; lack of persistence; messing about and joking with friends; stop listening to teachers; disinterest in sport or joining in. Participants were able to articulate these negative behaviours and could often see the downside of disengaging in class, whereby it was understood that a withdrawal of effort would lead to less practice and worse performance. However, even though some individuals were aware of this, the over-powering choice was to disengage from the lesson. This was not a concept that I entered the interview or analysis process with, it was not until analysis began and this theme developed that the research by Khoo and Oakes (2003) was located which suggests that misbehaviour may be a coping strategy for dealing with negative feedback from social comparisons. Participant 23 demonstrates this very articulately:

> **do you think you compare yourself with your PE group as a whole?** Yeah **can you explain that?** Of course, you're sort of, compare yourself to the good ones think oh I'm rubbish, because then people are better at it than you, then you feel like you're not very good, even though they might be like exceptionally good, still feel like you're not as good as them so you're rubbish **okay** well that's how I feel **okay, and so like… do you think it changes how much you concentrate how much effort you put in and things like that? …**sometimes in lessons, you sort of like mess around, if you're with, your friends and stuff then, you don't get as much practice as you should, and sometimes, you don't listen to examples, and then you don't, you're not very good at it, and, like, your behaviour, if you're not very good at the sport, I don't put as much effort in coz, I don't see the point, if I'm rubbish at it anyway **okay** coz then, you just I don't know, you just don't feel like there's any point in any **okay why do you feel like there's no point** because if your rubbish, then nobody really, I feel like nobody like sort of wants me to play with them if I'm rubbish, so then you just sort of stay in the background and just play with the mass, rather than going sort of playing and tackling and stuff, you just sort of stay at the back

Asking the participants to identify their 'feelings' or how they felt emotionally after comparison was probably the most difficult part of the interview process. In general, there were some very specific references made to discrete emotions such as embarrassment or jealousy, however, these were collected under the theme negative affect. Two examples of

data which led to the formation of this theme are given below. These quotes also demonstrate a general feeling of 'badness' rather than discrete emotions which was referenced in many instances.

> Participant 1: **but in PE that, you think that happens like when you're lessons when you see people and maybe, I don't know, they're better co-ordinated than you and that makes you think you're worse, or is it just a personal thing with your coordination?** obviously it makes me feel worse because, like I say, I compare myself with the best of the best, **yeah** um, so if I kind of see that I'm like the average or less than that, probably the average child should be, obviously it makes me feel a lot more down, but then I suppose I don't really know if that person is the best of the best or the average child

> Participant 8: **how did you feel when you found out that people had higher grades than you?** I was a bit jealous, but not like going to show it like, say you don't deserve it type thing, say well done

The results were not detailed sufficiently to be able to determine if Wehrens et al.'s (2010) categories could be supported or not, and participants were not able to articulate discrete emotions particularly well, so again it is difficult to relate the findings back to Buunk et al.'s (2005) and Smith's (2000) previous research. When discussing emotions, participants were able to describe sometimes feeling that a fleeting emotion may occur and then leave them straight away. This again highlights how difficult it is to pin down emotions in relation to social comparison and understand which comparisons may have long lasting mood changing effects versus discrete emotions experienced for a second which then pass on with no longer term effect. Future research in this area is warranted to help us understand affective responses to social comparisons in different situations.

The final theme that was inter-related with upward comparisons (perceiving one-self as less able) was a lack of desire to engage in activities outside the PE class such as inter-form and swimming galas as highlighted by Participant 2:

> Participant 2: **did you want to take part, did you wish you were a better swimmer, or did you not mind?** no no, I enjoyed watching it, cheering on my team. You know, no, I enjoyed it, **I, okay fair enough, you didn't want to be taking part?** Well, I'm not very good, I would, I prefer to watch

There is not yet to date any research (which the author is aware of) which ties social comparison to free time activity levels, however, Trautwein et al. (2008) found a relationship between being a member of a high average ability class and free time physical activity. The suggestion here is that in a high ability group, members are likely to feel less able due to social comparisons and consequently engage in lower levels of activity outside of the PE

class. The present study neither supports nor contradicts Trautwein et al.'s (2008) findings, but suggests that perceived relative standing may play a role in children's desire to take part in physical activity outside of the PE lesson and, therefore, warrants further research.

High perceived relative standing.

This theme identifies all comparisons where the individual believed that they were high/better in ability (HPRS) compared to the frame of reference. The following sub-sections detail the themes (outcomes of comparison) which were interrelated with HPRS. In cases where themes were interrelated with a specific frame of reference this is discussed within the context of the results. Furthermore, comparisons between the interrelationships for LPRS and HPRS are made where possible. The themes interrelated with HPRS are detailed in Table 3.7. When individuals perceived that their relative ability was high within the class, there were a number of both positive and negative interrelated themes. It might seem straight forward to suggest that these would just be the opposite of when perceived ability was low, however, this was not the case and a number of the following sub-sections will evidence the similarities and differences between low perceived ability and high perceived ability in class.

Engagement outside of PE.

This pattern concerned the participants reporting that perceptions of high ability in class in a sport would lead to increased engagement with sports and physical activity outside of the PE lesson. Participant 23 details her enthusiasm to take part in a sport she perceives herself to be relatively able at in comparison to football at which she is relatively unable. This provides a contrast between the effect of high and low perceived ability and indicates that in this instance the outcome of comparison has opposing effects dependent upon whether high or low ability is perceived:

> **how do you know other people think you're good** because there'll always like, say to you outside of PE oh you're really good at swimming, and then, they pick you for teams and stuff like, if we had swimming inter-form, then I'd, try and get in that, but I wouldn't do in football, because I don't like that, and I don't think I'm good

Disengagement.

Although this was a pattern found for those low in perceived relative standing, disengagement at the top end of the class was characterised by boredom, messing around with friends and also a ceiling effect of nowhere to go from the top. This was identified by those who perceived that they were very good at particular sports. An example of this is provided by Participant 20 (quote follows Table 3.7) who believed he was the best in his

Table 3.7

Consequences of Comparison: Themes and Sub-Themes when Highest Order Theme is High Perceived Relative Standing

Theme	Sub-Theme
Engagement outside of PE	Desire to compete and partake in activities
Disengagement	Boredom - best in class, where is there to go from there?
	Mess around with friends
Shrug off failure	
Perception of others' behaviours	Chosen to be leader by others
	Others in the class ask for help and advice
	Chosen as demonstrator of a skill or task
Engagement	Increased effort
	On task behaviours
	Characterised as a desire to improve at the sports
	Try to improve level in sports better at
	Try hard in sport that 'better at' already
Self-confidence gained from seeming able in class	Try hard to learn the skills if ability good enough that they seem attainable
Positive affect	Enjoyment - we like what we're good at
	Pride/superiority
	General sense of feeling good
Positive behaviours	Helping others in the class to improve
Negative behaviours	Exclude less able from games
	Don't want others in your team for competitive games

class for swimming. He became bored very quickly within his PE lessons in particular when they were swimming in PE.

> Participant 20: **do you enjoy doing it (swimming) at school?** Um, yeah, but it's a bit, I think because we've got some really good swimmers in this school, there's me, but then there's, a guy called Dale Cobleigh, who is quite good, but I think, if we are doing that I know it's like a curr curriculum, that you need to teach everyone to swim, but is just like we do widths, and they're doing 4 widths, and by the time they've done like 2, I finished, so I'm doing an extra four widths and they still haven't finished, so it's a bit, is a bit annoying because we get asked to do all the demonstrations and stuff as you know what to do, which isn't a surprise, it doesn't worry me at all, but it's like swimming at school, is a bit, boring to me, coz, I swim are often during the week, makes a change

Shrug off failures.

The ability to shrug off failures was characteristic of individuals who were high in perceived relative standing in class (HPRSC). Although it was noted that it was not easy, these individuals were able to put bad performances down to a 'one off' and shrug off their failure to perform at their normal level within the lesson. This may have been a way to maintain self-perception and to deal with a one off feeling of low perceived ability, but characteristic of high PRSC individuals as Participant 1 describes:

> **when you compare with them, how does it make you feel?** um, I'm not really sure, I mean…I don't really feel like anything, I just, sort of feel yeah they're better than me, let's see if you can get yourself better than them, **ok,** I'm not really, it's kind of…**so it doesn't make you feel unhappy that you're not better,** no, not unhappy and I know there are things that I'm better than them at and you can't be good at everything, but it's nice to be, and that's why I choose them, but in honest that's gonna take time… **how does it make you feel, that you struggle quite a lot with tennis do you think?** it doesn't really bother me, because when I get down and things, like when I'm not doing very well and, I just kind of think of all the things that I am good at, and think that well, you can't be good at everything, although you want to be, you have to accept that you're not going to be, **okay** so I just kind of think of the things that I *can* do good, instead of trying to think oh why can't you do this and that

Perception of others' behaviours.

In contrast to those low in PRS, those who were high in PRS were often chosen to lead the teams (if such an instance occurred) or to be the demonstrator in class by the teacher. This demonstrates how others' behaviours re-enforce children's perception of their ability within the class. Furthermore, high PRSC participants also detailed being asked questions on techniques, rules and skills by other class members, again re-enforcing this idea of knowledge and superiority in ability as Participant 20 describes:

> **do you ever um, look at the other people in your class and think, well they're not very good or they are very good…maybe things that you think in your head?** um, no, I always try and hit, er, a start point and somebody, so if they come up to me and say Dale how did I do? I say, you did really well, you're, I dunno, you're front crawl is really good in swimming, and then I say but, if you want some advice, then work on your longer strokes, or, hand entry, so you haven't got open fingers or whatever, um, but I always try and pick a compliment, I don't try and fault people I don't like to fault people because, I know when I get, if somebody says to me Dale you're rubbish, and I think dam, I need to pick up somewhere, something's gone wrong, something's blowing a whole in the side of the ship or something, so I know I've got to pick it up from somewhere, leave off, work harder

Engagement.

This theme was characterised by individuals who noted increased effort, on-task behaviours and a desire to improve at the activity in question whether that be skills or grades

for a certain activity. In addition, participants discussed trying harder (more engagement) at sports that they were already better at than ones they were worse at. The following quotes summarise this pattern of engagement:

> Participant 18: **do you think it's more fun, do you think you enjoy football more because you're better at it?** yeah **okay, um, do you think you try hardest at football out of all your sports, or do they try harder at hockey?** um, I try hard in most of them, like hockey and basketball and so yeah **okay, but what about netball and stuff?** I've tried that, I don't try loads, because I know I'm not very good, so **…why you know you're not very good?** because there's loads of people better than me and I know that like, if I keep trying, I know I'll get better, I'm better on the other sports, so um, I should just try harder at them

Self-confidence.

This theme encompassed improvement in self-confidence which was interrelated with high perceived relative standing regardless of the frame of reference. For example, being able in the class would in certain instances mean that getting better seemed achievable and, therefore, that the self-confidence was possessed which would allow the individual to try new things. On occasion, participants would articulate comparing with worse off others which would lead to enhanced feelings about the self. This would result in the comparer feeling better about their overall ability and consequently served as a method for self-enhancement as mentioned as a motive for comparison previously in this chapter. Participant 16 demonstrates how an individual might use a downward comparison with an individual to enhance their feelings of confidence:

> **And in swimming that you weren't so good at as the other sports, did you ever like compare downwards with anyone, might look and say well they're not as good as me, so I'm still quite good?** yeah I, yeah I sort of try and see just like to boost my confidence, so I like see someone I think oh I'm better at this, so I can't be that bad, so I could improve, so I did try to improve at it

Positive Affect.

Again, some of the children struggled somewhat with articulating how they felt following comparisons, however, others were able to discuss their feelings, but also the fact that these might be fleeting thoughts and reactions rather than long-lasting repercussions causing a 'mood' change. In some instances, this was relayed with specific reference to the class or in others just more generally discussed in terms of outcomes of comparisons. This theme incorporated references to positive feelings, thoughts and emotions experienced which included enjoyment, pride/superiority and a more general sense of feeling good. This was the most common response, so rather than participants detailing specific emotions, they

expressed more generalised feelings of positive affect. In regard to previous research (Buunk et al., 2005; Smith, 2000), these findings suggest that children may experience general feelings rather than specific emotions, however, this may be due to the fact that interviews were used in this instance as opposed to an emotions measure. Examples of this theme are as follows:

> Participant 1: **how do you feel when you think about how good you are at PE and the netball and the comparisons that you make?** It kind of makes me feel like really good, um, it makes me obviously, feel that I mean it's just nice to think that you're the best, um, I'm not quite sure, I do, probably all the competitions I've done, um, since I was nine and I kind of like got into the competitive sort of life and feel that the best, great, that's it, that's what I want to do, I've done what, I've been dreaming to do …**can you give me an emotion, like happy, proud?** Yeah happy and proud, um all the sort of happy emotions really, um, **ok** all of them yeah
>
> Participant 19: **how do you feel being above average in most sports** I, I feel quite proud of it, because it's not as if I'm average, I'm, I'm just a bit better, so, but I can always you know, strive for improvement, so, um, that's really quite nice thing, knowing that you're above average and not you know, just you know, average thing

Positive Behaviours.

There was one 'positive' theme that was prevalent in many of the narratives when individuals believed they were able at a sport. This was the willingness to and execution of helping behaviours towards those who were perceived as less able. Within the sample there were many examples of individuals discussing how they would help others perceived as less able with the following quote demonstrating this from Participants 16 and 3:

> **you said that you quite like having the girls there so that you play like netball you don't just mess around, is that because say that they don't beat you because you're worried about beating them, makes you work harder or is that not it at all?** um, well usually we have sort of like the girls and boys mixed on our team, coz, I think they do help us a bit, coz, my netball grade, that they got moved up a year, because I, I think it did help having girls in our year, sort of like, cause, I'm rubbish at positions and stuff at netball, and I don't know what I'm doing, like, but they do help out a lot, so it's good, I think it's the same in football, but the other way round, say like will help them out, coz I don't, a lot of their grades would have got moved up as well
>
> Participant 3: **can you give me an example of when that might have happened?** Um, we were playing hockey and we have to learn how to tackle, and this one girl was really struggling with it so I went with her and while the other team was playing a match I just did it with her and she got the hang of it

Negative behaviours towards others.

This theme interrelates with the themes from low perceived relative standing concerning exclusion from games. Although participants might not necessarily admit to excluding individuals perceived as less able, this was clearly a theme which characterised

high perceived ability. This theme was developed through narratives from individuals who were high in perceived standing and, although not always likely to admit directly excluding those less able indicated that this was a common practice in PE lessons. This type of behaviour might be displayed more openly in instances where competition and winning were characteristics of the task or activity which was taking place. Participant 20 provides an example of this theme:

> **who decides which people play where on the team** er, normally the captain **…if you had like a range people some good some bad, where would they get put?** um, it's different really, because of foot, its different coz of like in football, you normally let them go, like in the middle, so midfielder, so at the back they're not relied on, we're not relying on them to, like defend and were not relying on them to like score goals,

Additional Themes

There were other themes that were created whilst analysing the data that stand alone and do not fit as sub-themes into any of the aforementioned themes. The following three sub-sections detail these themes; "well it depends", expectation of performance level and overall perceptions of the physical self. These themes are included because they add description and explanation to social comparison processes in physical education, which was the aim of this study. These are each discussed in turn below.

"Well it depends"

This theme was developed when trying to interpret and understand some of the themes that had been created relating to consequences of comparison. It summarises the notion that the perception of an outcome (grade/performance) would depend upon how everyone else did i.e. the performance of the class as a whole can determine how the individual sees their own performance – 'if everyone else does badly then that is OK' or 'if everyone does well and I still did my best then I should have done better'. This theme demonstrates how individuals use subjective standards (Festinger, 1954) to interpret and weigh up their performance even when objective means are available. This extends previous research by demonstrating that adolescents are very tuned to their classmates' performance and that this is in many instances 'more important' than an objective level of ability. This highlights the need for research which examines the interplay and influence of different frames of reference both in terms of class versus individual and objective versus subjective standards. Participant 23 and 20 provide examples of data which led to formation of this theme:

> Participant 23: **what sort of information do you use to work out how good you are within those sports do you think** um, say, if we do, javelin or something and you

throw it further than everyone else then you feel like, you're doing it better, but if you get, like behind everybody else, then, it is the same as sort of all the sports, if you like if you feel like you're doing worse than everybody else coz you're not playing it as well as them then you feel like you're doing a bad sort of, you feel like you're genna get a bad level, but sometimes you don't because they sometimes based it on effort, and like how much effort is put in

Participant 20: **look around the class and they're like?** well if you're struggling as well, so you know I'm still better yeah than them yeah I wish I could be as good as them, that's the sort of thing **do you ever make those sorts of comparisons do you think?** yeah between the classes here, in quite a lot of sports, um, I think to myself, oh man I'm doing really bad this lesson, whatever, and then I think oh it's not just me, it's him or her over there, they are struggling with it as well, so it can't, it might be something difficult that I'm thinking I can do, something, but then I say ah I wish I could be like I don't know Ben over there or something

Expectation of performance level.

This theme was created to represent the importance of expectation in performance which was inter-related with consequences of comparison, namely how individuals felt after comparisons. i.e. if one perceived him/herself to be better and then was outperformed by someone expected to be 'worse' that could lead to a negative impact on how the comparer felt they had done. This again highlights how performance of others can colour what an individual believes they have achieved through social comparison processes. This contradicts Festinger's (1954) hypothesis that people compare with others only when objective standards are not available, as it provides evidence that children compare with other children even when their grade and national curriculum level is known. It again stresses the importance of social comparison in informing children of how 'well' they are doing in class and influencing their feelings about their ability and level attained. Participant 17 provides an example of this below:

if you like compare with people that are better than you is there like an emotional positive or negative effect? um I wouldn't really like mind, the boys like in football getting better grades because obviously they play a lot more sport than me, but then in games like netball, if they get higher than me, then I'll like feel quite bad and I'll feel as though I haven't performed as well, coz I know that I'm quite good at netball because I'm like in the team and also I've been picked for netball academy and stuff so **…do you ever feel like ashamed or envious of others, or jealous when you've failed and you've tried hard?** Um, it was, I'd feel, quite like jealous, when, at the start of the year, because, like when I first started, GCSE PE, coz there was, I was obviously the top, like sports people in year 10 were picked for the accelerated group, so, um, I feel jealous if like they get better and I'll be like well why couldn't I get that, but then, now, because I like know the people and I like know, like well that person definitely genna get the best in the mark and that persons probably genna get the worst, like there's, you can split people, you know generally what they're genna

> achieve, so I don't really get that jealous anymore, coz it's just, I just accept that that persons obviously a lot better than me and I know that they are a lot better so, I know that they're genna get better anyway

Overall perceptions of the physical self.

One of the main dependent variables that has been researched in relation to class standing and ability level within the class is self-concept (e.g., Chanal & Sarrazin, 2007). The present study found that individuals' physical self-concepts were informed at least partially by comparisons in physical education, however, participants were not always aware that this was the case. It seems that this may be more of a sub-conscious process which individuals go through. There were participants, however, who were able to articulate how comparisons with others in the class informed their perceptions of different 'parts' of their physical self-concept, for example participant 1 and 15 discuss below how comparisons with friends in their classes have led to their perceptions of flexibility level:

> **how do you know that you're not very good at the flexibility?** um I've tried to a lot of times before I'm, I've got a friend who does gymnastics um, there's all these things that she can do flexibility wise she can do the splits and that sort of thing, I've tried and I'm nowhere close and I used to do gymnastics also when I was little and I was always the bottom of the class, so I was never the best, so,
>
> Participant 15: **if I said to you how flexible do you think you are, what would you say?** Probably be in the middle **yeah** coz we have a gym girl in the year as well, who can do front flips and everything just from standing, and then there is some that won't do anything

General Discussion

Overall, there were many different themes created both from deductive and inductive analysis of the data. The present study focused specifically on the motives, frames of reference and consequences of comparison in addition to recognising the importance of direction of comparison in analysing the data and recording the results. The qualitative design facilitated the acquisition of knowledge of both social comparison processes with regards to adolescents and how these processes may function within a physical setting. Furthermore, this study has given a voice to children and their perceptions of the importance of social comparison. Although there were areas that the author wished to learn about, the method used to explore social comparison processes provided participants with the opportunity to discuss what was important to them with regards to social comparison, which led to the formation of new themes and new knowledge in this area (e.g. engagement as an outcome).

Adolescent motives for comparison have, to date, been largely ignored by researchers. The present study, therefore, provides one of the first examinations of adolescent motives for comparison and provides evidence to suggest that these may be similar to those motives

which drive adults to compare. In support of previous research, the present study indicates that evaluation, enhancement and improvement are all motives which adolescents are driven by when making comparisons. Also, the present study highlights that in specific instances the motive driving a particular comparison may be linked to target choice. This suggests that it is possible to link different aspects of the social comparison process together and that future research could look to examine whether certain motives are related to particular target choices. Furthermore, the present study suggests that young people are also motivated to avoid comparisons in some instances and that in others the root or reason for comparing may be unknown. This attests to the conscious and sub-conscious nature of comparisons and provides further evidence to the proposition that comparisons are ubiquitous (Gilbert et al, 1995) and often engaged in without conscious thought. Moreover, the most frequently cited and dominant motive for comparison discussed was self-improvement. This may be because physical education is an achievement setting where high grades are rewarded, or it may reflect the uni-directional drive upward that Festinger (1954) proposed. Future research is needed to examine the role that this motive might play in determining outcomes and if and how it may interact with comparative evaluations to influence outcomes.

In addition to motives, the present study also sought to examine frames of reference used in physical education. The results suggest that the class and individuals are the main sources of information and even when objective levels are provided, subjective standards may still overpower these comparisons and influence outcomes. The findings support the importance of the class (e.g. Chanal & Sarrazin, 2007) in determining outcomes and suggest that this frame of reference needs examining in relation to many other outcomes that have yet to be examined. Furthermore, the findings provide evidence that comparisons with a chosen individual are also often used, however, whether comparisons with such a standard can influence the outcomes of evaluation with the class or generalised other as seen in research by Buckingham and Alicke (2002) is at present unknown and warrants research attention.

The final part of the social comparison process investigated concerns the outcomes of comparison. The results indicate that in some instances it is possible to link certain outcomes to a particular frames of reference and a certain direction. However, in other instances the direction is more influential than the frames of reference. The findings did not support previous research indicating that the class average is linked to physical self-concept (e.g. Chanal et al., 2005; Chanal & Sarrazin, 2007), but this may be due to a limitation with the data and the interview process where participants were often unable to definitively articulate

how comparisons effected their perception of their physical self. Future research, should, therefore, continue to examine these relationships in more detail to determine if the class is a comparative standard which subconsciously influences how young people feel about themselves or if multiple frames of reference impact upon these perceptions, but these links were not evident within the present study. Other key findings from the analysis concerning outcomes involved the link between comparative evaluations and engagement and disengagement in activities both within and outside of physical education. These were themes that became apparent throughout the interview and analysis stages, and demonstrate that adolescents are aware of some of the positive and negative impacts of comparative evaluations that they engage in. Additionally, the results suggest that general feelings of affect may result from comparisons rather than discrete emotions (Wehrens et al., 2010) suggesting that future research should examine affective responses in both these ways (discrete emotions and general affect measure) to determine whether general affect or discrete emotions are more likely to result from comparative evaluations.

Overall the present study has provided new knowledge concerning adolescent motives, frames or reference and outcomes of comparison in physical education and also in certain instances new knowledge which is relevant to the social comparison literature more broadly. Firstly, this study has demonstrated that adolescents are both aware and unaware of their motives for comparison with the motive to improve highlighted as a frequent driver for comparison – knowledge which is knew to social comparison literature more broadly and within physical education. Additionally, this study has confirmed the use of multiple frames of reference in physical education and provides additional frames to those which have already been identified in this context. Furthermore, the present study highlights the need to include direction when assessing outcomes and demonstrates the strength of research which allows participants to have a voice from which, new and insightful findings are produced. Finally, this study has highlighted several outcomes associated with comparison such as engagement which have not previously been identified or examined in the wider social comparison literature. This study provides a base of knowledge regarding adolescent social comparison processes from which other research can build. Future research is needed, however, to replicate and test these findings in order to examine if these results hold across multiple samples.

Practical Implications and Limitations of the Research

There are several implications for teachers that have arisen from the completion of the present study. To begin, teachers should be made aware of the commonness of ability comparisons within physical education that adolescents engage in through choice. In relation to this it is essential that teachers are taught what outcomes are related to social comparisons both positive and negative. Within the present study, evidence has arisen that indicates the role that teachers can play in forcing comparisons and in doing so, the role that teachers play in causing certain outcomes such as disengagement becomes apparent. Teachers should, therefore, be tasked with reviewing their practices to ensure that those which serve to produce only negative social comparison outcomes can be adapted to ensure more positive outcomes. For example, allowing students to pick teams could be changed to the teacher numbering players into two teams so that no, one individual is left until last.

Another implication from the present study involves the use of objective data within the physical education setting. The present study suggests that objective standards such as grade and the importance of grade are influenced by the emphasis that teachers put on attaining different levels. For example, in School 1 participants were very aware of their grade and this consequently formed a comparative standard within this school, whereas in School 2, participants were largely unaware of their grade in physical education because this was not stressed by the teachers or school as important. Teachers could look to examine what they are trying to achieve by stressing grade as a comparison standard as this may serve to provide an extra source for negative comparative evaluations for those who are less able within the class. Furthermore, the present study highlights that the class and individuals are the most common sources of comparison information and that individuals may be chosen to serve different motives. The implication here is that teachers should be made aware of the prevalence of comparative evaluations and how these may influence different outcomes. Future research is, however, needed before specific recommendations regarding different frames of reference and comparisons are made.

Finally, the results which indicate that there may be negative influences of high perceived ability in class such as boredom and disengagement are also important findings for teachers. To try and tackle the ‘constraining aspiration’ problem for high achievers, teachers could try and provide a more able target who was a salient referent in the lesson. Salient, because the results suggest that frames of reference within physical education exert the biggest influence within this setting rather than targets outside of the physical education

lesson which might be needed to drive these high achieving students on. Furthermore, these findings suggest that teachers may need to do more to keep high achieving individuals interested and engaged in physical education possibly through the use of extension activities. Similarly to high achievers, low ability individuals indicated reduced engagement which resulted from comparative evaluations with the class. Teachers could look to address this problem by trying to reduce the use of class wise comparisons and practices which force class wise comparisons particularly on this group of individuals.

Although the present study provides new insight into social comparison processes, there are several limitations which should be noted. Firstly, participant participation was dependent upon agreement by the school, parent, teacher and participant which means that the sample may have been biased and consisted of adolescents attending schools that were interested in the study, with both teachers and parents who were willing to give permission for the pupils to take part. This could mean that the sample is biased in favour of individuals who are interested in and value physical education even if relatively unable. The second limitation concerns the way that the sample was chosen. It was decided at the start that teachers should choose a range of students rather than using an objective measure and choosing the sample in this way. This meant that it took the participation of twenty-three adolescents in order that a 'balanced' sample of individuals of differing abilities was achieved. This may have been due to teachers and participants having different opinions of their abilities and when interviewed participants gave the impression that they were more able than the teacher perception. Finally, the interviews were conducted in a school setting and although this had its advantages it may have led to some "rose-tinted" answers in some instances. This was more of a limitation within the first school where the space provided for interviewing participants was adjacent to the physical education staff room which could have meant that participants were worried about being overheard.

Conclusions

Notwithstanding the limitations mentioned above, the present study provides a platform from which researchers can move on and investigate social comparison processes in physical education. It provides new insight into children's motives for comparison, the frames of reference that are active in a physical education environment, and the consequences of comparisons. Furthermore, this study is the first qualitative piece to research social comparison processes in an adolescent sample with the specific aim of allowing young

people to voice their thoughts and opinions rather than a researcher imposing categories and variable relationships upon them.

Chapter IV

Study 2

Social comparison in physical education: An examination of the relationship between two frames of reference and engagement, disaffection and physical self-concept[10]

[10] Barnes, J. S., & Spray, C. M. (2013). Social comparison in physical education: An examination of the relationship between two frames of reference and engagement, disaffection and physical self-concept. *Psychology in the Schools*, *50*, 1060-1072. doi: 10.1002/pits.21726

Introduction to Chapter IV

The following chapter details the first of three quantitative studies which builds upon the qualitative investigation presented in Chapter III. The results from Study 1 (Chapter III) suggested that both the class and a chosen individual were the two most frequently discussed and informative comparison standards which adolescents articulated comparing with. This led to the decision to focus on comparisons with these two frames of reference for the present study and the two which follow. Additionally, in order to examine Festinger's (1954) initial hypothesis, self-evaluation was examined as a motive for comparison. In an attempt to extend previous research in both psychology and physical education, the motives for improvement and enhancement were also examined. These were chosen for multiple reasons. Firstly, because these motives have been found to be relevant in adult samples and there is a need to determine if these motives are also relevant to younger age groups. Secondly, because Study 1 indicated that adolescents are able to discuss comparing for these reasons. Thirdly, because previous research relating to goals (Butler, 1992) suggests that improvement may be a motive driving young peoples' comparison behaviour. Finally the present study examines engagement, disaffection and physical self-concept as outcomes of comparison. These dependent variables were also chosen for a number of reasons. Physical self-concept was assessed to examine if the relationship between comparisons with the class and individuals found previously (Chanal & Sarrazin, 2007) is replicable in British samples. Engagement and disaffection were chosen based on the discussion and findings of Study 1 where these two outcomes were detailed in relation to both upward and downward comparisons and also considered to be two important educational outcomes for both researchers and teachers to further understand.

Abstract

Drawing from theory and research into social comparison processes, the present study sought to determine children's motives for comparison in addition to the co-existence of class and individual comparisons in school physical education. The main and interactive effects of these types of comparisons were examined in relation to pupils' physical self-concept, as well as self-reported behavioural engagement and disaffection in class. In total, 545 (M_{age} = 13.89, *SD* = 1.57 years) children from two schools in England completed the questionnaire. Moderated hierarchical regression analysis demonstrated that the higher a child's perception of his/her ability in comparison to his/her classmates, the greater the level of engagement and physical self-concept reported and the lower the level of disaffection. Interaction analysis showed that when perceived ability with reference to the class was low, a downward comparison with an individual enhanced engagement, but this was not the case when perceived ability was high. Findings suggest further research into social comparison processes in this setting is warranted.

Keywords: Social comparison; frame of reference; engagement; disaffection; physical self-concept; physical education

Introduction

Our understanding of the social comparison process that humans use in order to make inferences about themselves has increased since the inception of Festinger's (1954) theory of social comparison processes. There are, however, limitations in our understanding of comparison processes in particular with reference to children. Although there has been research (Butler, 1992) that suggests social comparison tendencies change particularly during our youth (Butler & Ruzany, 1993) there are still number of questions which remain unanswered. These include, why children compare, which frames of reference exert the strongest influence on children and what effects comparing with others has on various cognitive, behavioural and affective outcomes. The majority of research investigating social comparisons children make, have been carried out in the school environment and most commonly with reference to academic subjects leaving a lack of clarity for those interested in more physical contexts such as physical education (PE) and sports.

The present study, therefore, investigates social comparison processes in PE. Specifically, motives for comparison, the influence of two frames of reference (class and individual) and the effect of comparing with these frames of reference on three important educational outcomes; engagement, disaffection and physical self-concept (PSC). In addition to being important learning environments where children develop their physical skills and abilities, PE lessons are rife with social comparison information and, therefore, provide a naturalistic setting in which to study social comparison. In order to achieve these aims, this study draws on several of Festinger's (1954) hypotheses. The first, that people possess an innate desire to self-evaluate; the second, that in the absence of objective information, people engage in social comparisons with others (frames of reference) to serve this self-evaluation motive; the third, that individuals are more likely to compare with others who are similar to them (the similarity hypothesis) than those who are dissimilar; the fourth, that people always strive to improve their abilities (Festinger, 1954).

Motives for Social Comparison

Festinger's (1954) primary hypothesis, that humans possess an innate drive to evaluate their opinions and abilities, has been examined extensively in research but has, on many occasions been challenged as the sole motive for comparison (Butler, 1992; Helgeson & Mickelson, 1995; Wood, 1989). It is now widely accepted that humans compare in order to self-enhance and self-improve in addition to the need to self-evaluate (Wood, 1989). Whether these motives are relevant and important to the comparisons children make is still relatively

unknown. Dijkstra et al. (2008), in their review of social comparison in the classroom, highlighted that there were no studies to date that investigated children's motives for comparison. In order to address this situation, Dijkstra et al. drew on research by Butler (1992) that suggested mastery goals indicated a desire to self-improve and performance goals, to self-enhance. Since the review by Dijkstra et al., Lubbers et al. (2009) investigated motives as part of a study investigating the role of friendship in the comparisons children make. The results indicated (although these motives were not explicitly examined) that children are driven to compare for self-improvement and self-enhancement motives as well as self-evaluation. Drawing the limited research on children's motives together, we find that there is a need to further investigate motives and also their role and relationship with the frames of reference children use for comparison.

Frames of Reference

Frames of reference are the standards (targets/others) against which an individual may compare him/herself. Within the context of education, researchers (Chanal & Sarrazin, 2007; Marsh & Hau, 2003; Skaalvik & Skaalvik, 2002) have tried to identify and define what some of the frames of reference might be in this context. Skaalvik and Skaalvik (2002) proposed eight frames of reference that may be active in the school setting, four internal and four external. In order to discuss frames of reference, we must also be aware of the importance of the direction of comparison. Direction of comparison refers to whether the comparison target is perceived as better or more able (an upward comparison), the same (a lateral comparison) or less able (a downward comparison). Returning to Festinger's (1954) hypotheses outlined in the introduction, we can see how the similarity hypothesis fits here. Although we take similarity to mean similar ability constituting a lateral comparison, it has been interpreted in many different ways which are discussed elsewhere (Goethals & Darley, 1977).

Combining knowledge of who the frames of reference might be and direction of comparison allows us to make certain predictions. Furthermore, there is some evidence to suggest that the class average (average grade) in PE is negatively related to PSC (Chanal et al., 2005; Chanal & Sarrazin, 2007). Chanal and Sarrazin (2007) also examined whether comparisons with specific individuals or small groups co-existed within the PE class. The findings suggested that children engage in comparisons with multiple frames of reference and that there are both positive and negative effects of comparisons which depend upon the direction of comparison and the frame of reference in question.

Marsh et al., (2008a) also investigated the role of multiple frames of reference in the school setting in determining self-concept and self-belief. Similar to Chanal and Sarrazin (2007), the results indicated that both generalised and specific others were used as sources of social comparison by children within the school setting and highlight a need for more research to focus on understanding which standards are more important and most influential and why this is the case.

The importance of different frames of reference has been investigated in other areas of psychology as well. Locke (2007), in an examination of personalised and generalised comparisons found that the emotional consequences of generalised comparisons were greater (when an upward comparison was engaged in) than those of personalised comparisons. Locke (2007) suggests that this is due to the restrictive nature of personalised comparisons whereas those comparisons which are more generalised expand the relevance of comparison information and, therefore, have a bigger impact on an individual. In contrast to these findings, however, Buckingham and Alicke (2002) found that having an individual (co-actor) present when making a comparison moderated the effect that comparing with an aggregate had on self-evaluation of ability. These differences in effect and opinion on the strength of influence of comparisons with individuals versus the aggregate or generalised other suggest a need for further research investigating comparison with various targets and how these might play different roles in various contexts.

Consequences of Social Comparison

Research assessing the consequences of social comparison in PE has, to date, been limited with PSC serving as the primary dependent variable (e.g., Chanal & Sarrazin, 2007; Trautwein et al, 2008). In addition to the relationship between class average and PSC, Chanal and Sarrazin (2007) found that boys tended to have higher physical self-concepts than girls and that comparing with a small group of individuals who were more able (upward comparisons) was positively related to PSC. Furthermore, Chanal et al. (2005) found that the effect of the negative relationship between class average and PSC increased over time whereby perceptions of the self decreased over the course of the 10 week study. In contrast, Margas et al., (2006) found that individuals who were streamed into a high ability class experienced an initial increase in their self-evaluations when selected which then decreased over the course of the year with self-evaluations returning to the original pre-selection level. These contrasting results reflect a need to further investigate the role of social comparison and the effect of comparing with the PE class on physical self-perceptions.

Trautwein et al. (2008) researched the reciprocal relationship between free time physical activity, PE grade and PSC whilst examining the consequences of being a member of a class with high average ability. The results provided evidence that those who were members of a class with high average abilities reported lower levels of physical activity outside of the class. Overall, the research so far in PE suggests that social comparisons can affect children's PSC and physical activity levels. Although physical activity levels and PSC are important variables to measure, it is also important that researchers investigate other outcomes that might be related to or influenced by the social comparisons that young people make so that the results can be disseminated and used by those working in schools to help inform practice.

Engagement and disaffection in class are two such variables which may be related to social comparisons. Past research (France-Kaatrude & Smith, 1985; Santrock & Ross, 1975) has shown links between social comparisons and task perseverance. As persistence at a task could be one indicator of engagement it is possible to suggest that social comparisons may affect engagement in lessons. In addition, Khoo and Oakes' (2003) research suggests that misbehaviour could be a coping strategy used to deal with experiencing negative feedback from social comparisons. Misbehaviour could also be seen as a lack of engagement (disaffection). There is no research as far as the authors are aware, however, that specifically links social comparisons to children's engagement and disaffection in PE. Engagement is believed to be an important factor in determining how and what children learn (Bevans, Fitzpatrick, Sanchez & Forrest, 2010; Skinner, Kindermann & Furrer, 2009). Specifically in PE, engagement has been associated with children's level of activity in class and physical activity participation outside of curriculum lessons (Ntoumanis, 2005). Given the health benefits of taking part in regular physical activity, it is important for researchers to investigate and provide insight into what predicts engagement. This is particularly important in PE with reference to girls who are known to be less engaged in general in sport and PE than boys (Bevans et al., 2010).

In contrast to engagement, disaffection defines a complete lack of engagement, persistence and effort in a task/subject (Skinner et al., 2009). Although interest in disaffection is growing (e.g. Sandford, Duncombe & Armour, 2008), it is not yet known if the precursors for engagement and disaffection are the same, or if both may have different antecedents. Understanding why children are engaged and disaffected is important for a wide variety of

reasons and based on the previous findings on task perseverance and misbehaviour (France-Kaatrude & Smith, 1985; Khoo & Oakes, 2003; Santrock & Ross, 1975), social comparison processes may provide some insightful knowledge into why children engage or not with PE.

The Present Study

Social comparison research investigating children's motives and frames of reference, as well as the consequences of these comparisons in PE, is minimal and in the case of motives, non-existent. The first aim of the current study was, therefore, to determine what motives children indicate for comparing with a chosen individual in their PE class. We predicted that children would compare with the chosen individual for a variety of reasons (Butler, 1992; Lubbers et al., 2009). In particular, we examined self-improvement, self-enhancement and self-evaluation as these have been related to children's social comparisons in other domains (Lubbers et al., 2009) and are the three most widely researched and evidence based motives for comparison (Helgeson & Mickelson, 1995; Wood, 1989).

Second, previous research suggests that different frames of reference can have differing effects and that physical self-perceptions are affected by social comparisons children make. These studies have focused on PSC and left other important educational variables untouched. With these considerations in mind, the current study investigated the effects of two frames of reference - a general (class) standard and that of a chosen individual - on three dependent variables: behavioural engagement, behavioural disaffection and physical self-perceptions. Based on previous research (Chanal & Sarrazin, 2007; Huguet, et al., 2001), it was predicted that the higher the perceived relative standing in class (PRSC), the more positive PSC would be. We also predicted a positive relationship between (PRSC) and engagement (i.e. the more able one perceives him/herself, the higher the level of engagement), whereas it was expected that the lower the PRSC, the higher the level of disaffection would be. Furthermore, it was predicted that perceived ability in comparison to the chosen individual (PRSI) would be related to the dependent variables in the same manner as PRSC (Buckingham & Alicke, 2002).

We also hypothesised that PRSC would have a stronger relationship with all three dependent variables (Locke, 2007; Marsh et al., 2008a) than PRSI, as this was the generalised other and would provide a more general view of the self than comparing with a specific target. Given this prediction of differential influence, it was also hypothesised that there would be moderation of the relationships between PRSC and the dependent variables by PRSI (Buckingham & Alicke, 2002). Specifically, it was anticipated that comparing

downward with an individual target would help to diminish some of the negative effects of comparing with the aggregate on PSC and engagement and reduce disaffection.

Method

Participants

Five hundred and forty-five children (264= males, 276= females, 5= undisclosed; M_{age} = 13.89, *SD* = 1.57 years) in years 7 to 11 from two schools in England took part in the study. The proportion of children eligible for free school meals was below average for both schools indicating above average socio-economic status of the pupils attending the schools. 87.6% of the sample classified themselves as white, 5.5% as Asian, 1.8% as black and 5% indicated identifying with another ethnicity.

Procedures

Following the University ethical guidelines, Headteachers from the schools were contacted in order to gain permission to carry out the study at their schools. Once approval had been granted, ethical approval was given by the ethics board (Appendix L) and the heads of departments were contacted for permission to carry out the study during their PE lessons. Once consent from department heads was obtained, parental opt-out forms (Appendix M) were sent via the schools to the children's parents. Parents were given two weeks to return the form if they wished their child to be excluded from the study. Participants completed the questionnaire during their normal PE lessons. An explanation was given to children on how to fill in the questionnaire and they were then given a chance to ask questions. In addition, the participants were given an information sheet to read (Appendix N) and informed that they could ask questions at any point whilst they were completing the questionnaire if they did not understand anything. Student assent was obtained by each participant signing a willingness to participate form (Appendix O) before completion of the questionnaire. All participants were re-assured that their PE teachers would not be able to access their answers and that their responses were anonymous. Each participant completed a questionnaire (Appendix P) which was split into four sections in approximately 15 to 20 minutes.

Measures

Personal information.

Children were asked to indicate their school name, year group, PE teacher, gender, date of birth and ethnic group.

Comparative evaluations.

This study sought to investigate comparative evaluations with two frames of reference within the PE class, an individual and the class in general. In order to measure children's perceptions of their ability in comparison to their class (PRSC), an adaption to Huguet et al.'s (2001) perceived relative standing in class item was made. Participants were asked how they compared to most of their classmates in PE and responded on a 5 point Likert scale where 1 signified much worse, 3 the same and 5 much better. It was indicated that this item could be left blank if participants were unsure of the answer. Initially, the intention was to assign children to one specific class; however, this was not achievable because the children took part in PE in different groups throughout the term. The participants remained in classes for at least a unit of work and were instructed to consider the class that they were currently in when completing the questionnaire.

To ascertain if the participant compared with an individual in the class, the questionnaire then asked the student to identify one person in their class with whom they typically compared. The word compare was defined for the participants as 'someone who you may look for similarities and differences with whilst doing an activity'. Children were given the option to leave this question blank and move on to the next section if they did not compare with anyone. To measure perceived ability (relative standing) in comparison to the individual (PRSI), participants were then asked to respond to the following item, adapted from Huguet et al.'s (2001) comparative evaluation item used to measure standing in class: 'How good do you feel you are in comparison to the person you named in question 4?' Responses to this question were on a 5 point Likert-type scale from 1 to 5 where much worse = 1, the same = 3 and much better = 5.

Motives for comparison with a chosen individual.

Self-improvement, self-enhancement and self-evaluation were assessed using an adapted version of Wood, Michela and Giordano (2000)'s tool. Participants were informed that 'People compare with others for many reasons, sometimes for more than one reason' (Wood et al., 2000). Children were then asked to circle the number which best represented their reasons for comparing with the individual they had previously named in question 4. Participants responded to three statements using a 5 point Likert-type scale with anchors strongly disagree (1) and strongly agree (5) (the mid-point was not defined). The three statements were adapted in the following ways: 'to learn something from this person or to use this person as someone to model myself after' was adapted to 'to learn something from this

person about how to improve on a task or a skill' (self-improvement); 'to feel better about myself or my situation' was adapted to 'to make me feel better about myself' (self-enhancement); 'to evaluate or measure myself on some dimension' was adapted to 'to know whether I am better or worse than this person' (self-evaluation).

Engagement and disaffection.

In the present study, engagement and disaffection were measured using adapted items from Skinner et al.'s (2009) engagement and disaffection measure. Items were adapted for seven items by changing the word 'class' to 'PE', in two items by changing school to PE and in one item by adding 'my PE'. Behavioural engagement was assessed with five items which included 'I try hard to do well in PE'; 'I pay attention in my PE class'. This scale has shown adequate internal consistency ($\alpha = .72$) and factorial validity ($\chi^2 = 6.59$ (2, 1018), $p < .05$, CFI =1.00, TLI = 1.00, RMSEA =.05) (Skinner et al., 2009). Five behavioural disaffection items were also derived from Skinner et al.'s (2009) scale. Example questions were: 'I don't try very hard at PE'; 'When I'm in PE my mind wanders'. Adequate factorial validity ($\chi^2 = 16.13$ (2, 1018), $p < .001$, CFI=1.00, TLI = .99, RMSEA = .08) and internal reliability ($\alpha = .78$) for this scale has been established (Skinner et al., 2009). All questions were answered on a 1 – 4 Likert-type scale from not true at all to very true.

Physical self-concept.

To measure how the children felt about themselves physically, the global physical self worth scale from the short version of the Physical Self Description Questionnaire (Marsh, Martin & Jackson, 2010) was used. This included the following three items: Physically, I am happy with myself; Physically, I feel good about myself; I feel good about who I am physically. Participants responded using a Likert-type scale of 1- false to 6 - true. This scale has shown adequate reliability ($\alpha = .85$) and factorial validity in adolescent samples (Marsh et al., 2010) ($\chi^2 = 2{,}864$ (2, 685), $p < .001$, CFI= .97, TLI = .97, RMSEA = .07).

Results

Preliminary Analysis

Confirmatory factor analysis using the robust maximum likelihood method with EQS software (version 6.1; Bentler, 2003) was carried out. A number of fit indices were used to assess the factor structure of engagement, disaffection and PSC. The comparative fit index (CFI), the Bentler-Bennet non-normed fit index (NNFI), the standardized root mean square residual (SRMR) and the root mean square error of the approximation (RMSEA). Hu and Bentler (1999) suggest that an acceptable fit index for CFI is .95, the SRMR, less than .06

and the RMSEA, less than .08. The original model indicated reasonable fit: Satorra-Bentler X^2 (101) = 333.45, $p < .001$; CFI = .95; NNFI = .94; SRMR = .05; RMSEA = .07 (CI = .06-.07), however, examination of the standardized loadings revealed the need to remove one item from the disaffection scale (When I'm in PE, I just act like I'm working). This process of item removal is suggested by Hofmann (1995), because it allows retention of the factor structure using only the items which best indicate the construct. When this item was removed the three factor model showed satisfactory structure: Satorra-Bentler X^2 (87) = 289.17, $p < .001$; CFI = .96; NNFI = .95; SRMR = .05; RMSEA = .07 (CI = .06- .07).

Descriptive statistics and scale reliabilities.

Table 4.1 depicts the means, standard deviations and Cronbach's alpha values (for those scales which had multiple items). All multi-item scales (engagement; disaffection; PSC) showed good internal reliability ($\alpha > .70$). The majority (90%) of students chose to compare with an individual target (n = 489). Overall, children perceived themselves to be above average in class (M = 3.11, SD = 0.96) and when one was indicated, better than the chosen target (M = 3.19, SD = 0.85). Motives to improve and enhance were indicated as reasons to compare by 33% and 31% of the children respectively, whereas 25% indicated comparing in order to evaluate their capabilities. The rest of the responses were either at the midpoint (which suggests that participants neither agreed nor disagreed) or indicated disagreement with the statements: 19% (improve); 34% (enhance); 31% (evaluate). Correlations between all variables are indicated in Table 4.2. Engagement and disaffection were negatively correlated, and engagement was positively correlated with PSC. Less than 5% of the data was missing for all scales except for improvement, evaluation and enhancement which had 10.8, 11.2 and 11.0% missing respectively.

Moderated Hierarchical Multiple Regression Analysis

Three separate moderated hierarchical regression analyses were conducted to determine if class and individual comparisons significantly predicted engagement, disaffection and PSC.[11] Variables were standardised before being entered into the regression equations, however, the interaction (product term) was left unstandardised (Aiken & West, 1991; Friedrich, 1982). All analyses controlled for the potential influence of year group, sex and ethnicity (entered at step 1). PRSC and PRSI were entered into the regression equation simultaneously at step 2. At step 3, to test if there was a significant interaction between PRSI and PRSC on engagement, disaffection and PSC, the product of PRSI and PRSC

[11] We tested the interactions of PRSI with each motive to predict each of the dependent variables. All results were non-significant. Motives are, therefore, omitted from the results presented herein.

(PRSCxPRSI) was entered.

Table 4.1

Descriptive Statistics and Internal Consistency Estimates

	Range	***M***	***SD***	**α**
PRSC	1-5	3.11	.96	
PRSI	1-5	3.19	.85	
Motive to improve	1-5	3.18	.94	
Motive to enhance	1-5	2.96	1.19	
Motive to evaluate	1-5	2.88	1.12	
Engagement	1-4	2.97	.71	.90
Disaffection	1-4	2.00	.66	.72
Physical self-concept	1-6	4.13	1.41	.95

Note. No internal consistency estimates are provided for variables measured by a single item. PRSC = perceived ability compared to the class; PRSI=perceived ability compared to a chosen individual.

Table 4.2

Intercorrelations of Variables

		1	**2**	**3**	**4**	**5**	**6**	**7**
1	PRSC	-						
2	PRSI	.31**	-					
3	Motive to improve	.14**	.05	-				
4	Motive to enhance	.08	.06	.20**	-			
5	Motive to evaluate	.11*	.01	-.00	.36**	-		
6	Engagement	.43**	.25**	.32**	.10*	.08	-	
7	Disaffection	-.34**	-.17**	-.19**	.05	.06	-.50**	-
8	Physical self-concept	.41**	.20**	.17**	.01	.05	.35**	-.37**

*$p < .05$, **$p < .01$

Note. PRSC=perceived ability compared to the class; PRSI= perceived ability compared to a chosen individual.

Physical self-concept.

PRSC was found to be significantly associated with PSC (ΔR^2 = .14, Fcha (2, 432) = 39.33, p <.001) with no main effect of PRSI (p > .05). No interaction was found between PRSI and PRSC on PSC (ΔR^2 = .00, Fcha (1, 431) = .00, p > .05). At the final step of analysis, the model accounted for 24% of the variance in PSC (See Table 4.3).

Table 4.3

Moderated Hierarchical Regression Analysis Predicting Physical Self-Concept

Variables entered	**R^2**	**F**	**df**	***b***	***SE***	**β**	**t**
Final Step	.24	22.97***	6,431				
Sex				.41	.08	.21	4.84***
Year Group				-.14	.03	-.21	-4.89***
Ethnicity				.03	.06	.02	.49
PRSI				.05	.05	.05	1.13
PRSC				.35	.04	.36	8.06***
PRSI x PRSC				.04	.04	.04	.98

****p* < .001

Note. PRSC = perceived ability compared to the class; PRSI=perceived ability compared to a chosen individual.

Engagement.

PSRC and PRSI were both significantly associated with engagement in PE (ΔR^2 = .18, Fcha (2, 422) = 54.46, p <.001). In addition, there was an interaction between PRSC and PRSI (ΔR^2 = .01, Fcha (1, 421) = 4.89, p <.05) (See Table 4.4 and Figure 4.1) in predicting engagement. Although PRSI and PRSC had positive main effects on engagement, the interaction term indicated a small but negative relationship. Simple slope analysis indicated a significant relationship between PRSC and engagement at low β = .46 (.06), p < .001, mean β = .38 (.04), p < .001 and high β = .30 (.06), p < .001 conditional values of the moderator. The relationship between PRSC and engagement was stronger when PRSI was low. When children perceived themselves to be highly able within the class there was little effect on engagement whether they compared upward or downward with a chosen individual. In contrast, when children perceived themselves to be worse than average in class, whether the chosen individual was perceived as better or worse impacted on levels of engagement. Specifically, lower levels of engagement were indicated by those who believed themselves to

be less capable than the class average and the chosen individual. At the final step of analysis the model accounted for 33% of the variance in engagement.

Table 4.4

Moderated Hierarchical Regression Analysis Predicting Engagement

Variables entered	**R^2**	**F**	**Df**	***B***	***SE***	**β**	**t**
Final Step	.33	34.36***	6,421				
Sex				.08	.08	.04	1.01
Year Group				-.24	.03	-.36	-8.97***
Ethnicity				-.05	.06	-.03	-0.81
PRSI				.13	.05	.12	2.82**
PRSC				.38	.04	.37	8.78***
PRSI x PRSC				-.08	.04	-.09	-2.21*

*$p < .05$, **$p < .01$, ***$p < .001$

Note. PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

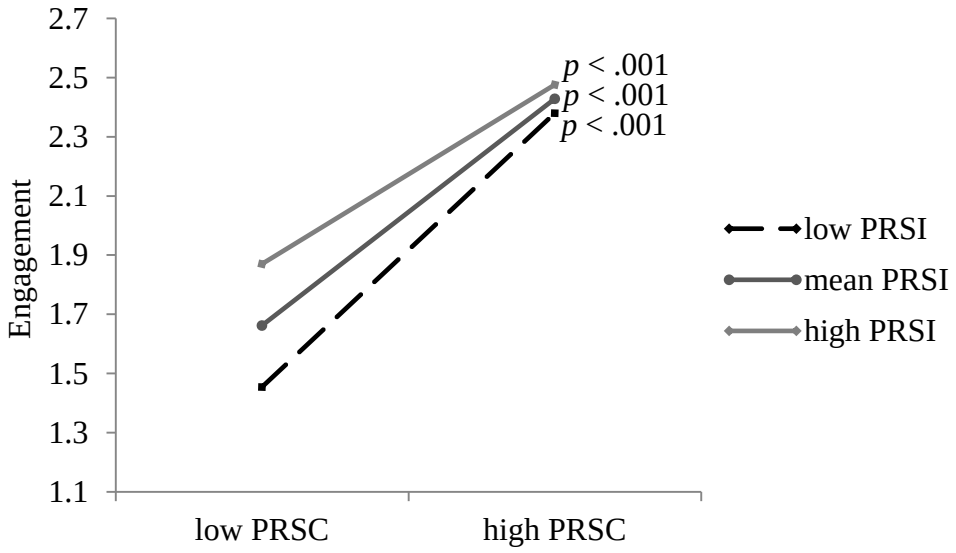

Figure 4.1 Regression slopes (± 1 SD) depicting interaction between PRSC and PRSI on engagement. *Note.* PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

Disaffection.

PRSC was significantly associated with disaffection (ΔR^2 = .15, Fcha (2, 430) = 44.56, p <.001) with no main effect for PRSI (p >.05). There was no interaction between PRSC and PRSI (ΔR^2 = .00, Fcha (1, 429) = .00, p >.05. At the final step of analysis, the model accounted for 30% of the variance in disaffection (See Table 4.5).

Table 4.5

Moderated Hierarchical Regression Analysis Predicting Disaffection

Variables entered	**R^2**	**F**	**Df**	***b***	***SE***	**β**	**t**
Final Step	.30	30.14***	6,429				
Sex				-.40	.08	-.20	-4.92***
Year Group				.20	.03	.31	7.45***
Ethnicity				-.03	.06	-.02	-.56
PRSI				-.01	.04	-.01	-.24
PRSC				-.38	.04	-.38	-8.97***
PRSI x PRSC				.04	.04	.05	1.11

***p < .001

Note. PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

Discussion

The present study sought to determine children's motives for comparison with an individual target in PE and to identify the relationships between PRSC and PRSI and engagement, disaffection and PSC. The results suggest that PRSC and PRSI both account for some variance in PSC, engagement and disaffection, however, PRSC has a greater influence than PRSI. Additionally, PRSI was found to moderate the relationship between PRSC and engagement. This finding advances existing literature by indicating that comparisons with multiple frames of reference co-exist and interact in PE. Furthermore, the study provides evidence that children compare for multiple reasons, however, future research is needed so that motives can be better understood and their role in the social comparison process identified.

Children's Motives for Comparison in PE

This study examined children's motives for comparing in PE. The study builds upon previous research (Butler, 1992; Lubbers et al, 2009) by providing evidence that some

children are motivated to compare by the desire to self-improve, evaluate and enhance whilst others are not. In addition, it was expected that (Wills, 1981; Wood, 1989) interactions between motives and PRSI on the dependent variables would be found, but none were identified. The results of this study seem to suggest that there is no relationship between motives, social comparisons and outcomes; however, this reasoning seems premature given the limited number of studies to date. The results may stem from the use of single item measures to assess comparison motives and perhaps the ability to indicate all three motives as reasons, rather than specifying a primary motive for comparing with the chosen individual.

Frames of Reference and Consequences of Comparisons

This study provided further support for the proposition that children are simultaneously influenced by multiple frames of reference (Chanal & Sarrazin, 2007) and that there can be both positive and negative effects of comparing with different frames of reference at the same time. The results support the notion that perceiving oneself as below average ability in the class has a negative impact on PSC, engagement and disaffection. In addition, the results suggest that the generalised other (the class) has a more significant influence on students than comparisons with individuals. These findings support the work of Locke (2007) and suggest that the generalised other produces a broader understanding of the self rather than comparing with an individual which may reflect a more restricted view of the self. These results supported the prediction that the higher the PRSC, the higher individuals' PSC (Chanal & Sarrazin, 2007).

This study, in addition to replicating previous research in PE focusing on PSC, also sought to look at two variables which are important in the school context: engagement and disaffection. The results indicated that the higher the PRSC, the lower the level of disaffection, supporting research by France-Kaatrude and Smith (1985) and Santrock and Ross (1975) on task perseverance, and by Khoo and Oakes (2003) on misbehaviour. The interaction that was found between PRSC and PRSI for engagement extends previous research (Buckingham & Alicke, 2002) by demonstrating that comparisons with an individual can interact with the effects of comparing with a generalised other in a sample of children in a naturalistic setting. However, the negative interaction effect was unexpected given the positive main effects of PRSC and PRSI on engagement. This effect could arise when children infer they are highly able in reference to their class as well as their target individual, and perceive tasks as too easy or the lesson as insufficiently challenging. Under such circumstances, these children may report lower, not higher, engagement in lessons. Further

research should attempt to substantiate the small but negative effect of feelings of competence across multiple frames of reference on engagement in PE.

Implications for Practice

Understanding what affects the development of children's self-perceptions and why children are engaged or disaffected in class is important for individuals working in schools. This study indicates that the comparisons children make are related to these three important educational outcomes. Although this study focuses on PE, which provides children with an environment where social comparison information is rife, there are implications for those working in schools more widely. Teachers and others working in this context should be aware that children are affected by social comparisons both positively and negatively and that by comparing children with others in the class, may serve to hinder rather than help a child.

Furthermore, with specific reference to engagement, it is clear from this study that individuals working with children in schools should be aware that those who are less able within the class are: a. probably aware of this fact; b. particularly vulnerable to social comparison information and c. that their engagement levels may be negatively affected by comparing with an individual who is better than them. To help negate some of the additive negative effect of perceiving oneself as low ability in the class and compared to an individual, it could be suggested that teachers can encourage those who are less able in the class to compare with others who are the same level or worse than them (although this does not seem particularly ethical). Additionally, teachers could look to identify tasks and practices in class/PE which decrease opportunities for comparison. For example, it might be that instead of asking the class to watch the best standard present to perform a skill - which would be an upward comparison for many children in the class and potentially quite damaging on engagement levels, particularly for those who are right at the bottom of the class - that the teacher instead performs the skill. Finally, teachers also need to be aware that pupils' positive comparisons in relation to both the class as a whole, *and* to a chosen classmate, may be linked with lower levels of engagement, and that appropriate and differentiated task setting may be helpful in ameliorating the negative effect of combined sources of favourable social comparisons.

Limitations and Future Directions

As with all research, this study has limitations. The first is that we were unable to assign children to specific classes as many students did not remain in the same PE class for each activity. This meant that assigning a PE class was not straightforward and that we did

not have sufficient classes to complete multilevel modelling analyses (Maas & Hox, 2005; Singer & Willet, 2003).

A further limitation of this study relates to the direction of causality that we hypothesised in the analyses. As this study was correlational, cause and effect cannot be determined. Based on previous research (Chanal et al., 2005; Chanal & Sarrazin, 2007; Marsh et al., 2008a), we expected that comparative evaluations would predict PSC, engagement and disaffection. However, one could argue that these relationships are reciprocal, and that over time, our dependent variables will affect the evaluations that children make in PE. Now that a relationship between comparative evaluations and engagement and disaffection has been identified, future longitudinal research is needed to assess the directionality and impact of these variables on each other over time.

The third limitation was that this study employed self-report measures, therefore, there is the chance that the relationships between variables were inflated through shared method variance. Future research would benefit from including teacher or parent ratings of performance to supplement the self-report measures. Finally, following previous research (Huguet et al., 2001), we used single item measures to examine motives (Wood et al. 2000) and comparative evaluations with the class and an individual within the class. Developing multi-item scales for both motives and comparative evaluations is warranted in order that social comparison processes can be assessed more rigorously.

The current study was one of the first to investigate the links between engagement, disaffection and social comparisons. Although no evidence was found to support the role of motives in predicting these dependent variables, this may have been due to the single item motive measure that was used and the fact that the children could identify comparing for all reasons rather than indicating a specific motive which has been the case in previous research (Lubbers et al., 2009). Future research into children's motives for comparison is essential if we are to progress our understanding of the comparison process and whether motives do at any point moderate the relationships between comparison and outcome.

Future research examining the relationships between comparisons and consequences over time would also help to enhance our understanding of this area. Chanal and Sarrazin (2007) found that gymnastics self-concept (PSC) continues to diminish over time, but we do not yet know where this ends or if the effects vary depending on activity. In this study we assessed general levels of PE engagement and PSC. Future work might provide useful evidence in determining whether some curriculum activities are more or less affected by

social comparisons. For example, does swimming increase social comparison behaviour and decrease engagement in the short or long term? Conducting such research could provide teachers with an enhanced understanding of why children engage with PE and could help to inform how programmes for PE are developed so that comparison information is used to create positive outcomes, and minimise negative ones.

To date, this study is one of only a few, to have investigated social comparison in physical education. It highlights the importance of researching children's social comparisons and investigating both the positive and negative implications of social comparison in physical education. Finally, this study extends previous literature by providing evidence for a relationship between comparative evaluations and levels of engagement and disaffection in PE, in addition to demonstrating an interaction effect between comparative evaluations involving two frames of reference.

Chapter V

Study 3

Social comparison in physical education: Impact of frames of reference, motives and self-determination

Introduction to Chapter V

The following chapter details the second of three quantitative studies which builds upon the qualitative and quantitative investigations presented respectively in Chapters III and IV. In combination, the results from both Studies 1 and 2 highlighted the importance of examining multiple frames of reference with Study 2 providing insight into the differing associations between class and individual comparisons and engagement, disaffection and physical self-concept. Study 1 also indicated that adolescents engage in comparisons for multiple reasons, however, Study 2 did not provide strong evidence in favour of the importance of different motives in predicting outcomes. Given these contradictory results and no other knowledge to support or contradict these findings , it was decided that further research of this area was required before conclusions as to their role/lack of role in the comparison process could be drawn. In addition to physical self-concept which was examined in Study 2, it was decided that this study and the one which follows would investigate three other outcomes which were identified in Study 1 to be associated with class and individual comparisons. These are positive and negative affect, as well as self-efficacy. In addition to examining different dependent variables to Study 2, this study also draws upon behavioural regulation from self-determination theory where it examines if these interact with comparative evaluations to predict the dependent variables. These regulations were investigated because behavioural regulations have been shown to predict numerous positive and negative outcomes within physical education and therefore, researching these in combination with social comparison would hopefully provide more detailed insight into how effects on dependent variables occur. Furthermore, investigating behavioural regulations alongside social comparison allows for the examination of whether these theories and component parts can independently explain variance in outcomes or if in fact these should be considered alongside one another when researching important educational outcomes.

Abstract

Although physical education (PE) provides a naturalistic achievement setting for researchers to investigate social comparison processes, our understanding of how these processes function in this setting is limited. The present study aimed to determine the role of two frames of reference (the class and a chosen individual), motives for comparison and students' behavioural regulations in predicting physical self-concept, self-efficacy and positive and negative affect in PE. Four hundred and ninety-one (M_{age} = 14.75, *SD* = .90 years) adolescents from 28 classes from one school in England completed the questionnaire. Multilevel modelling analysis showed that perception of ability compared to the class was important in determining all outcomes, whereas comparative evaluation with an individual was less influential. Main effects for self-improvement and evaluation motives on both self-efficacy and positive affect were also found. Interaction analysis indicated that perception of ability compared with an individual moderated the relationship between perceived ability in class and self-efficacy, positive affect and negative affect whilst self-evaluation and controlled regulation interacted with perceived ability compared to an individual and the class respectively to predict negative affect. The findings highlight the need to examine multiple frames of reference simultaneously in addition to motives for comparison and behavioural regulations in order to provide a more holistic understanding of how these factors interact to influence important educational outcomes.

Keywords: Social comparison; frame of reference; physical self-concept; physical education; self-efficacy; affect

Introduction

Physical education (PE) is a context experienced by most adolescents across the world. Specifically within Western societies, adolescents must participate in physical education as part of the curriculum. This provides not only a naturalistic setting for investigating psychological processes, but also an environment that helps shape adolescents physical abilities, competencies and long term participation in physical activity (Armstrong & Welshman, 2006). Given the numerous benefits of physical activity participation (e.g. Dishman, Washburn, & Heath, 2004) and the knowledge that physical education experiences can influence participation outside of the school environment, researchers must continue to investigate why some adolescents engage and develop positive self-perceptions in this setting and why others do not. One theory which has rarely been utilised by researchers investigating PE, and one which may provide useful insight into adolescents' experiences in PE, is Festinger's (1954) theory of social comparison processes.

Social comparison provides various hypotheses for investigating human behaviour. The vast majority of the research published so far however, has concentrated on adult samples leaving a lack of clarity for those interested in understating social comparison processes in younger age groups. Specifically, there are only a few studies which attempt to: assess children's motives for comparison (e.g. Barnes & Spray, 2013; Lubbers, et al., 2009); investigate the frames of reference children use for comparison (Chanal & Sarrazin, 2007; Marsh et al., 2008a; Marsh, et al. 2008b); assess relationships between comparative ability and important consequences such as educational and health outcomes (Chanal, et al., 2005); and none which attempt to link social comparison with other theories in an attempt to better understand adolescents' experiences. Furthermore, social comparison research involving young people has, for the most part, focused solely on the school setting and academic subjects. This leaves our knowledge about important physical activity contexts such as physical education largely under-researched.

The present study, therefore, aimed to investigate the relative importance of comparative evaluations with two frames of reference (class and individual) in determining four important educational outcomes: physical self-concept (PSC); self-efficacy; positive affect and negative affect; and the direct and moderating effects of both motives for comparison and behavioural regulations.

Frames of Reference and Motives for Comparison

An individual's desire for comparison requires them to find a frame of reference or target with which to compare. Festinger (1954) proposed that subjective standards will only be used for comparison when an objective standard is not available. It has, however, been demonstrated, and is now widely recognised, that subjective standards are used even when objective standards are available (e.g. Gilbert et al., 1995; Klein, 1997). Furthermore, research (e.g. Chanal & Sarrazin, 2007; Marsh & Hau, 2003) has proposed and tested several frames of reference in different settings. Within physical education, however, the main focus has been on comparison with the class, a specific individual and a small group of chosen individuals (Chanal et al., 2005; Chanal & Sarrazin, 2007).

In order to examine and understand the effects of comparing with a frame of reference, one must also define the perceived ability of the target, i.e. the direction of the comparison. An individual can be perceived as: more able than the comparer (upward comparison); less able (downward comparison); or equally able (lateral comparison). Direction of comparison links back to one of Festinger's (1954) original hypotheses where he proposed that individuals will choose to compare with those who are similar to themselves.

Amalgamating this knowledge of frames of reference and direction of comparison together, it is possible to make predictions regarding the impact of comparisons on important educational outcomes. Also, previous research concerning frame of reference effects can be used which, to date, has shown that children engage in simultaneous comparisons with multiple frames of reference with both positive and negative consequences resulting from these comparisons (Barnes & Spray, 2013; Chanal et al., 2005; Chanal & Sarrazin, 2007). Moreover, it is possible to draw upon knowledge studying adults, where Locke (2007) for example, found that the generalised other tended to have a more significant impact on emotional consequences (after an upward comparison) than when comparing with an individual. This may be due to the generalised other providing a more 'accurate' evaluation of the self as opposed to comparison with one individual with whom a negative comparison may be easier to overcome. In contrast, Buckingham and Alicke (2002) found that the effects of comparison with a generalised other could be moderated by the presence of a co-actor. These differing results highlight the need for research investigating multiple frames of reference and how the influence of these frames of reference may vary depending on the context in which the comparison occurs.

Research investigating motives for comparison has stemmed from Festinger's (1954) first hypothesis, that humans use social comparisons to evaluate their opinions and capabilities. That this motive for comparison is the sole reason for comparing has been challenged (Helgeson & Mickleson, 1995; Lubbers, et al., 2009; Wood, 1989) with self-improvement and self-enhancement now recognised as alternative motives for comparison. Research investigating the motives that drive young people to compare is still in its infancy with less than a handful of studies in this area having been completed (Barnes & Spray, 2013; Lubbers et al., 2009). Lubbers et al. (2009) found that children compare for many reasons, including those such as proximity i.e. children compared with others who sat near them in class. Only one piece of research to date has examined the associations between adolescents' motives for comparison and various outcomes (Barnes & Spray, 2013). This study found no direct or moderating relationships between the motives for self-enhancement, self-evaluation or self-improvement and physical self-concept, engagement and disaffection in PE. This may be due to these motives not playing a role, or possibly due to the use of single item measures (Barnes & Spray, 2013) to assess the three motives investigated. Linking back to one of Festinger's (1954) original propositions – that individuals possess an upward drive in the case of abilities – it was hypothesised that in physical education (an achievement environment where ability is rewarded by a higher grade) the motive to improve would play a role in determining outcomes. Given the small number of studies investigating social comparison motives particularly in younger samples, the present study investigated the role of motives in directly predicting and moderating the relationship between social comparisons and the four outcomes. To achieve this aim, however, the development of a multi-item scale was required. This was due to the absence of a suitable measure for assessing young people's social comparison motives which has, to date, neither been developed nor validated.

Consequences of Comparison

The behavioural, emotional and cognitive consequences of comparison in achievement settings remain relatively under-researched (Barnes & Spray, 2013; Butler, 1992; Chanal et al., 2005; Chanal & Sarrazin, 2007). Specifically in PE, research has focused primarily on physical self-concept (PSC). Research investigating PSC in physical education has found that relationships vary dependent upon the frame of reference in question (Chanal et al., 2005; Chanal & Sarrazin, 2007). For example, Chanal and Sarrazin (2007) demonstrated that upward comparisons with a small group served to boost PSC, whereas

Chanal et al., (2005) found a negative relationship between class average ability and PSC which increased over the 10-week study period.

In addition, Trautwein, at al., (2008) found that students who were members of a class with a high average ability reported lower levels of physical activity and PSC, but higher grades while Barnes and Spray (2013) found that students who believed they were highly able within the class experienced higher levels of engagement and lower levels of disaffection. From this small number of studies, it is clear that relationships between different frames of reference and outcomes are varied and that research investigating multiple frames of reference and other important educational outcomes is warranted. Self-efficacy and positive and negative affect (well-being) are three such variables which may be related to social comparison.

Bandura (1977) defined self-efficacy expectation as the confidence in one's ability that successful execution of a required behaviour is achievable which in turn will lead to a desired outcome. Self-efficacy is considered an important educational consequence (Zimmerman, 2000) which has been associated in the school context with social comparison (Chase, 1998) and also demonstrated to link with levels of physical activity (Trost, Kerr, Ward & Pate, 2001). Chase (1998) qualitatively investigated the sources of self-efficacy in PE and sport, finding that comparison with others was the third most frequently cited source of self-efficacy information.

Affective outcomes of social comparison have received less attention than cognitive and behavioural consequences. There are a few studies, however, to draw upon when examining this as part of the comparison process (Buunk, et al., 2005; Vrugt, 1994). The research by Buunk et al., (2005) and Vrugt (1994) has concentrated on academic subjects and 'discrete' emotions arising from comparisons, however it may be that comparisons result in a general feeling of affect rather than specific emotions (as seen in Study 1). Given the small number of studies investigating affect in relation to social comparison both within psychology in general, and specifically within physical education, it seems important that researchers investigate both discrete emotions as outcomes of comparison as well as more generalised feelings of affect, in order that neither is preferred in favour of the other. This is particularly important given that at present our understanding of affect as a consequence of comparison is so limited. With this is mind, a more generalised approach towards affect was taken for this study and, consequently, positive and negative affect were chosen as the method to assess affective reactions.

Self-determination Theory

Combining theories to further knowledge and understanding of different concepts and the causality of relationships is a task which researchers have begun and must continue to undertake (Spray, Wang, Biddle & Chatzisarantis, 2006). A theory that has provided insight into adolescents' behaviour and motivation in physical education and one which links with social comparison is self-determination theory (SDT; Deci & Ryan, 2000). SDT proposes that individuals possess three psychological needs, which, when satisfied result in the experience of well-being. These needs are; autonomy, competence and relatedness.[12] Our understanding of whether social comparison may influence satisfaction of these needs, however, is at present, limited and warrants research attention. In addition to the three basic needs, SDT also proposes that there are six forms of behavioural (motivational) regulation. These regulations lie on a continuum from highly self-determined (intrinsic), through various forms of extrinsic motivation (integrated, identified, introjected), to amotivation (Deci & Ryan, 2000; Markland & Tobin, 2004).

Research investigating self-determination theory in physical education (Hagger Chatzisarantis, Culverhouse, & Biddle, 2003; Mouratidis Vansteenkiste, Lens, & Sideridis, 2008; Ntoumanis, 2001; Standage, Duda & Ntoumanis, 2003; Standage, Duda & Ntoumanis, 2005; Taylor, Ntoumanis, Standage & Spray, 2010) has supported SDT findings with children who experience higher levels of autonomy, competence and relatedness tending to be more engaged in sport, showing higher levels of effort and spending more time in leisure time physical activity. The picture regarding behavioural regulations is slightly more complex, with for example, individuals high in identified regulation putting in more effort than those who are intrinsically motivated (Taylor et al., 2010). Given the importance of behavioural regulations in predicting important educational outcomes and social comparison findings also linking to important educational outcomes (Barnes & Spray, 2013; Chanal & Sarrazin, 2007), it seems logical to suggest that social comparison theory may tie in with SDT and help explain variance in outcomes such as positive affect. Behavioural regulations were included in this study in order to extend previous research by examining whether these moderate the relationships between social comparisons and important educational outcomes (self-efficacy, positive and negative affect, PSC). The moderation was predicted because of the similarity between the relationships found in previous research between affect and

[12] Autonomy is defined as an individual's desire to dictate one's own behaviour and to experience concordance between an activity and one's integrated sense of self (Deci & Ryan, 2000). Relatedness refers to "the need to feel connected with others," (Deci & Ryan, 2000, p. 231), whilst competence refers to the desire to attain given outcomes and to feel that one's efforts are effective (White, 1959).

motivational regulations and that which has previously been found between social comparison and affect in the wider literature and within Study 1 in this thesis. Theoretically, the intention was to examine if the impact of social comparison information could interact with individuals motivational regulation to influence outcomes in physical education. This was proposed as an examination based on the idea that different types of regulation might influence the way that social comparison information was interpreted and hence the outcomes of comparison.

The Present Study

The aims of the present study were three-fold. Firstly, the study aimed examined the role that comparisons with two frames of reference played in predicting four dependent variables (PSC, self-efficacy, positive and negative affect). It was predicted that positive relationships between perceived relative standing/ability in class (PRSC) and PSC, self-efficacy and positive affect would be found, whilst a negative relationship of PRSC on negative affect was predicted. It was further hypothesised that these relationships would be found in the same direction for perceived ability compared to a chosen individual (PRSI). Secondly, this study examined both the main effects of three motives for comparison on the four dependent variables and whether these motives moderated the expected relationships between social comparisons and the dependent variables. It was hypothesised that self-improvement and self-enhancement would both positively predict positive affect, self-efficacy and physical self-concept, whilst negatively predicting negative affect, whereas self-evaluation would not directly predict any of the dependent variables but serve to moderate the relationships between social comparisons and the dependent variables. Thirdly, this study sought to bring SDT and social comparison theory together by examining the moderating role of behavioural regulations on the predicted relationships between social comparison and the dependent variables.

Method

Participants

Four hundred and ninety-one adolescents (209 = males, 273 = females, 9 = undisclosed; M_{age} = 14.75, *SD* = .90 years) nested within 28 classes, taught by 9 different teachers, in years 9, 10 and 11 from one school in England took part in the study. The proportion of children eligible for free school meals was below average indicating above average socio-economic status of the pupils attending the school. 89% of the sample

classified themselves as white, 3.3% as Asian, 1.7% as black, 4.4% indicated identifying with another ethnicity and 1.7% did not disclose their ethnicity.

Procedures

A pilot study was carried out to assess the appropriateness of language and length of the questionnaire. Parental consent was given for children who took part in the pilot study. Children were asked to feedback their comments and thoughts on the questionnaire. Following the pilot study (n = 12), the questionnaire was revised and then distributed at the participating school.

Following the University ethical guidelines (Appendix Q),[13] the Headteacher (Appendix R), PE teachers and parents of participants (Appendix S) were contacted before the questionnaire was circulated to students. Once parental consent was granted (via opt-out forms), participants completed the questionnaire during their normal PE lessons. An explanation was given to children on how to fill in the questionnaire and they were then given a chance to ask questions. In addition, the participants were given an information sheet to read (Appendix T) and informed that they could ask questions at any point whilst they were completing the questionnaire if they did not understand anything. Student assent was obtained by each participant signing a willingness to participate form (Appendix U) before completion of the questionnaire (Appendix V). All participants were re-assured that their PE teachers would not be able to access their answers and that their responses were and would remain, anonymous. Each participant completed a multi-section questionnaire in approximately 20 to 30 minutes.

Measures

Personal information.

Adolescents were asked to indicate their school name, year group, PE teacher, gender, age and ethnic group.

Behavioural regulations.

The revised perceived locus of causality in physical education (PLOC-R) was utilised to assess the behavioural regulations which underlie children's participation in PE (Vlachopoulos, Katartzi, Kontou, Moustaka & Goudas, 2011)[14]. This scale has been adapted

[13] Ethical approval was granted by the University ethics board before any questionnaires were completed by participants.

[14] Integrated has not been regularly assessed in child and adolescent populations and is, therefore, not included in the present study. This is because it has been shown by Vallerand (2001) that young people may be unable to achieve a sense of self-integration.

from Goudas, Biddle and Fox's (1994) perceived locus of causality scale and has demonstrated acceptable validity (Vlachopoulos, et al., 2011). The PLOC-R divides extrinsic motivation into three categories: external regulation; introjected regulation; identified regulation in addition to providing items assessing intrinsic motivation and amotivation. Responses to the stem 'I participate in PE…'are on a 7 point Likert-type scale from 1 (totally disagree) to 7 (totally agree) with the midpoint 4 defined as 'in between'. Example items include 'because PE is fun' (intrinsic), 'because it is important to me to try hard in PE' (identified), 'because it would bother me if I didn't' (introjected), 'because that's the rule' (external) and 'but I don't really know why' (amotivation).

Comparative evaluations.

In order to measure children's perceptions of their ability in comparison to their class (PRSC), Huguet et al.'s, (2001) perceived relative standing in class item was adapted with the addition of a further three items. Participants were asked how good they perceived themselves to be compared to most of their classmates in PE responding on a 5 point Likert-type scale where 1 signified much worse, 3 the same and 5 much better. It was indicated that these items could be left blank if participants were unsure of the answer.

To ascertain if the participant compared with an individual in the class, the questionnaire then asked the student to identify one person in their class with whom they typically compared. The word compare was defined for the participants as 'someone who you may look for similarities and differences with whilst doing an activity'. Children were given the option to leave this question blank and to move on if they did not compare with anyone. To measure perceived ability/relative standing in comparison to a chosen individual (PRSI), participants were asked to respond to the following item, adapted from Huguet et al.'s (2001) comparative evaluation item used to measure standing in class: 'How good do you feel you are in comparison to the person you named in question 8?' Responses to this question were on a 5 point Likert-type scale identical to that used for perceived ability in class.

Motives for comparison.

Self-improvement, self-enhancement and self-evaluation were assessed using an adapted version of Wood et al.'s (2000) motives measure in addition to adding 6 new items. Helgeson and Mickleson's (1995) motive items were used as a guide for developing extra items. Participants were informed that 'people compare with many different students in PE, those who might be better than them, those who they might feel are the same ability and those who aren't as good as them.' Participants were then asked to indicate how likely they were to

compare with others in PE by responding using a 5 point Likert-type scale with anchors extremely unlikely (1) and extremely likely (5) (the mid-point was not defined). The three improvement items read as follows: 'so I can get better'; 'to give me a goal'; 'to learn what to do or what not to do'. Enhancement items included: 'to make myself feel better'; 'to feel good about my own abilities'; 'to make me feel better about how I'm doing'. Evaluation items included: 'to see how I'm doing', 'to provide insight into my own abilities'; 'to see how well I'm performing'.

Positive and negative affect.

In order to assess affect, the Positive and Negative Affect Scale (PANAS; Watson, Clark & Tellegen, 1988) was employed. Watson at al. (1988) developed 20 items, with 10 items addressing positive affect and 10 for negative affect. The PANAS has demonstrated good internal reliability for both positive and negative affect along with acceptable factorial validity (Watson et al., 1988). The PANAS presents 20 words which participants respond to using a 5 point scale, with each number represented as follows: 1, very slightly or not at all; 2, a little; 3, moderately; 4, quite a bit; 5, extremely. Participants were required to indicate how they had felt generally over the past few weeks in their PE lessons.

Self-efficacy.

In order to assess participants' self-efficacy, Jackson, Whipp, Chua, Pengelley and Beauchamps' (2012) 9-item measure was used. Participants responded to items on a 5-point scale (1 = no confidence at all; 2 = low confidence; 3 = moderate confidence; 4 = high confidence; 5 = complete confidence) which followed the stem 'please honestly rate your confidence in your ability at this moment in time to…'. The 9 statements included: 'try your hardest in every PE class'; 'be physically fit enough to always perform well in PE'. These items have shown good factorial structure and validity (Jackson et al., 2012).

Physical self-concept.

To measure adolescents' physical self-perceptions, the global physical self-worth scale from the short version of the Physical Self Description Questionnaire (Marsh, et al., 2010) was used. This included the following three items: Physically, I am happy with myself; Physically, I feel good about myself; I feel good about who I am physically. Participants responded using a Likert-type scale of 1 (false) to 6 (true). This scale has shown adequate reliability and factorial validity in adolescent samples (Marsh et al., 2010).

Results

Preliminary Analysis

To test the factor structure of the motives scales and perceived relative standing in class (PRSC), confirmatory factor analysis was carried out. Four fit indices were used to assess the factor structure of the four variables: comparative fit index (CFI); the Bentler-Bennet non-normed fit index (NNFI); the standardised root mean square residual (SRMR); the root mean square error of approximation (RMSEA). Hu and Bentler (1999) proposed the following fit indices as acceptable: CFI > .95; SRMR < .06; NNFI > .95; RMSEA < .08. The three motives were entered into one model simultaneously with a separate model run for PRSC.

Motives models were run twice, once as a one factor model and a second time as a three factor model. The three factor model demonstrated a significantly better fit than the single factor model. The three factor model indicated good fit: Satorra-Bentler X^2 (24) = 67.14, $p < .001$; CFI = .97, NNFI = .95, SRMR = .04, RMSEA = .08 (CI = .06 - .09). The model run for PRSC also demonstrated good fit: Satorra-Bentler X^2 (2) = 5.49, $p = .06$; CFI = .995; NNFI = .99, SRMR = .01; RMSEA = .06 (CI = .05 - .16).

Descriptive Statistics and Scale Reliabilities

Table 5.1 details the intercorrelations, means, standard deviations and Cronbach's alphas (for those variables with multiple items) for all variables. Intrinsic and identified items were combined to form one predictor of autonomous behavioural regulation. External regulation showed poor internal reliability ($\alpha = .46$) and was subsequently removed from any further analyses. Introjected regulation showed reasonable internal reliability ($\alpha = .69$) and was, therefore, used as the controlled behavioural regulation predictor. All other multi-item scales showed good internal reliability ($\alpha > .70$). 72.4% of participants indicated comparing with an individual in their PE class. Less than 5% of data was missing across all variables.

Multi-Level Regression Analyses

In order establish class level-variance for each variable, intra-class correlations (ICCs) were calculated. ICCs for the dependent variables were: PSC 1.8%; self-efficacy 2.9%; positive affect 7.4%; negative affect 1.0%. Following this, three models were run for each dependent variable. The first model examined comparative evaluations, the second, social comparison motives and the third, the moderating role of behavioural regulations.

All variables were standardised before the regressions were run. All interaction terms (product term) were left unstandardised (Aiken & West, 1991; Friedrich, 1982).

Table 5.1

Descriptive Statistics, Intercorrelations and Alpha Co-efficients for all Variables

		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	***M***	***SD***	**α**
1	PRSC	-											3.26	.86	.91
2	PRSI	.40**	-										3.17	.93	
3	Motive to improve	.19**	.00	-									3.29	.90	.70
4	Motive to enhance	.26**	.08	.44**	-								3.17	1.05	.82
5	Motive to evaluate	.26**	.02	.64**	.53**	-							3.46	.92	.79
6	Autonomous	.43**	.03	.55**	.41**	.57**	-						4.45	1.51	
7	Controlled	.02	-.06	.23**	.25**	.19**	.18**	-					2.75	1.31	.69
8	Amotivation	-.29**	-.09	-.27**	-.19**	-.30**	-.61**	.12*	-				2.44	1.41	.80
9	Physical self-concept	.51**	.22**	.16**	.16**	.18**	.25**	-.17**	-.20**	-			3.94	1.35	.93
10	Self-efficacy	.52**	.18**	.41**	.33**	.47**	.67**	.09	-.45**	.42**	-		3.65	.75	.88
11	Positive affect	.46**	.11	.52**	.32**	.53**	.73**	.08	-.53**	.30**	.72**	-	3.28	.85	.88
12	Negative affect	-.31**	-.10	-.15**	-.07	-.19**	.25**	.22**	.32**	-.28**	-.32**	-.32**	1.47	.59	.84

**$p < .01$

Note. PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

Standardisation was carried out to prevent multi-collinearity between predictors when interactions were entered into the analyses. Analysis was carried out using MLwiN (2.25) (Rabash, Browne, Healy, Cameron & Charlton, 2012). All predictor variables were fixed to attain model convergence. All interaction terms were entered simultaneously. Non-significant interactions were then removed and the model re-run. The process of removal was methodical with the least significant removed each time. Once significant interactions were left, only when the change in deviance was significant were the interactions retained in the models.

Comparative evaluations - two frames of reference.

PRSC positively predicted PSC, β = .49 (.05), $p < .05$, self-efficacy, β = .51 (.05), $p < .05$ and positive affect, β = .52 (.05), $p < .05$ and was negatively associated with negative affect, β = -.22 (.06), $p < .05$. There were no main effects of ability compared to a chosen individual (PRSI) on any of the dependent variables. Three interactions between PRSC and PRSI on self-efficacy, positive affect and negative affect were identified (See Table 5.2). Firstly there was a negative interaction between PRSC and PRSI on self-efficacy (β = -.13 [.04], $p < .05$), where self-efficacy was highest when PRSC was high and PRSI was low. Simple slope analysis indicated that slopes were significantly different from zero at low β = .64 (.06), $p < .001$, mean β = .51 (.05), $p < .001$ and high β = .38 (.06), $p < .001$ conditional values of the moderator (See Figure 5.1).

Table 5.2

Multi-level Model Analyses – Frame of Reference Effects

	PSC	Self-efficacy	Positive Affect	Negative Affect
Model 1 intercept	-.03 (.07)	.03 (.06)	.00 (.08)	-.06 (.05)
PRSC	.49 (.05)*	.51 (.05)*	.52 (.05)*	-.22 (.06)*
PRSI	.03 (.06)	-.05 (.05)	-.07 (.05)	.01 (.06)
PRSI X PRSI	.02 (.04)	-.13 (.04)*	-.09 (.04)*	.13 (.04)*
Deviance	793.65	728.89	1135.29	791.80

*$p < .05$

Note. PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual; PSC = physical self-concept.

Similarly, a negative interaction between PRSC and PRSI on positive affect was identified (β = -.09 [.04], $p < .05$). Positive affect was highest when PRSC was high and PRSI was low. Simple slope analysis showed that the slopes were significantly different from zero

at low β = .61 (.06), $p < .001$, mean β = .52 (.05), $p < .001$ and high β = .43 (.06), $p < .001$ values of the moderator (See Figure 5.2). The interaction concerning negative affect was positive (β = .13 [.04], $p < .05$), with lowest levels seen when PRSC was high and PRSI was low. Simple slope analysis indicated that the relationship between PRSC and negative affect was significant at low β = -.35 (.07), $p < .001$ (-1 *SD*) and mean β = -.22 (.06), $p < .001$ conditional values of the moderator and non-significant at high levels β = -.09 (.07), $p = .21$ (See Figure 5.3).

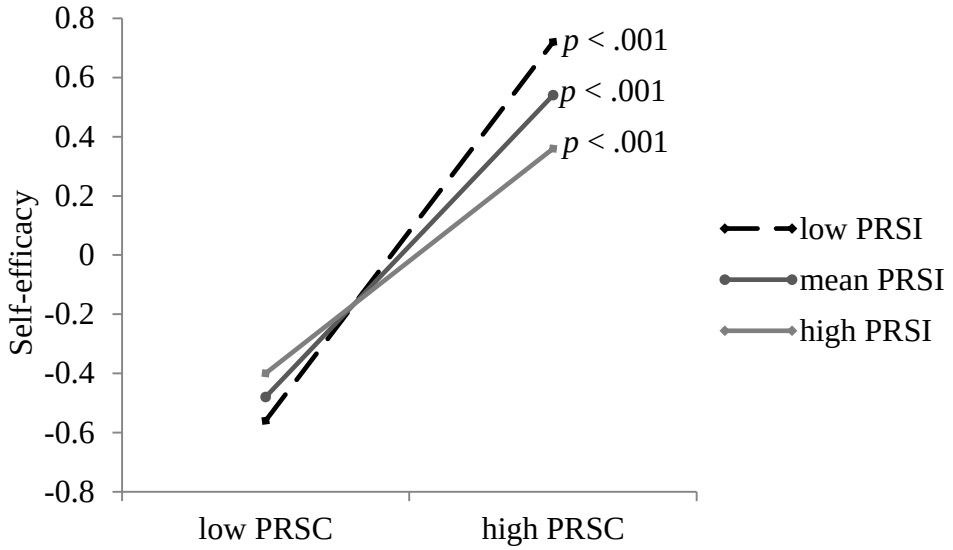

Figure 5.1 Regression slopes depicting interaction between PRSC and PRSI on self-efficacy.
Note. PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

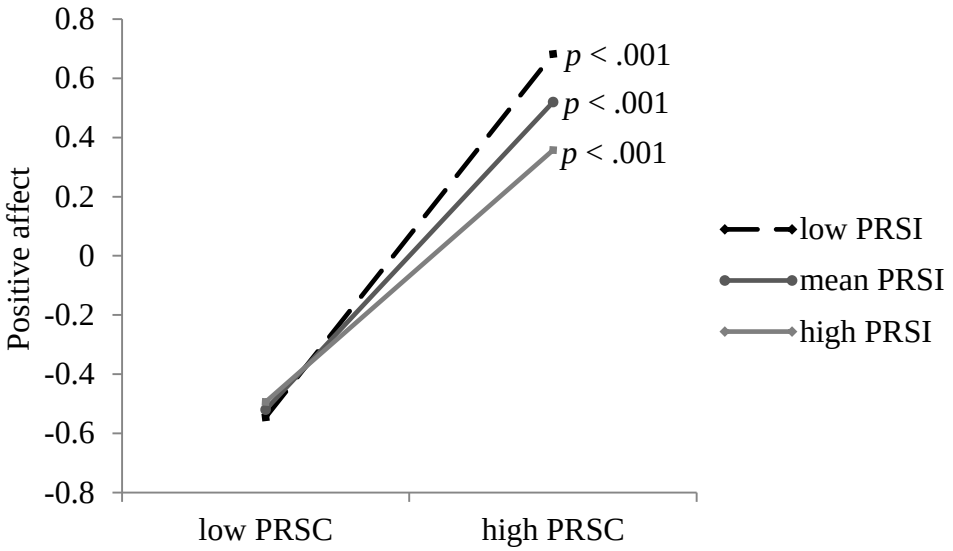

Figure 5.2 Regression slopes depicting interaction between PRSC and PRSI on positive affect. *Note.* PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

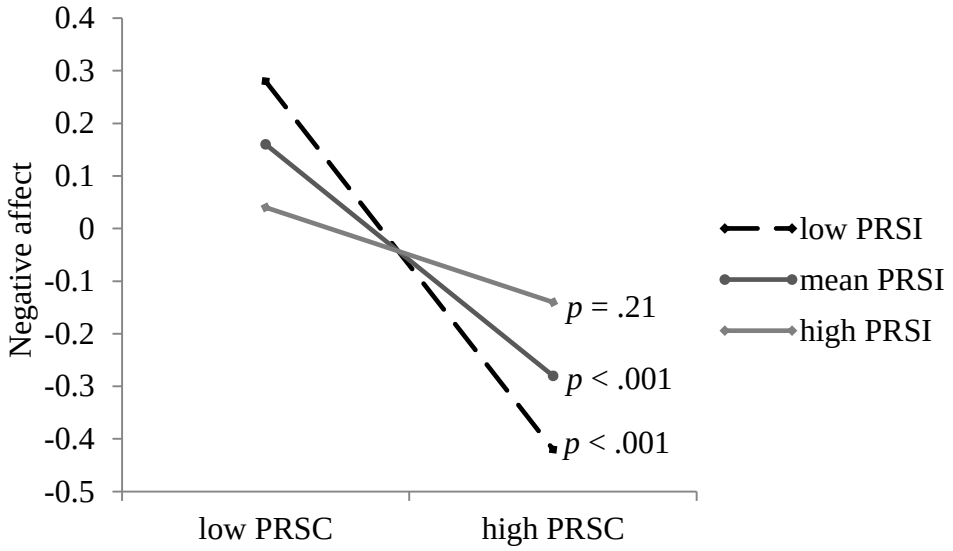

Figure 5.3 Regression slopes depicting interaction between PRSC and PRSI on negative affect. *Note.* PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual.

Motives for comparison.

No main effects of motives on PSC were identified (See Table 5.3). Self-efficacy was positively predicted by self-evaluation, β = .23 (.07), $p < .05$ and self-improvement β = .15 (.06), $p < .05$. Similarly, positive affect was also positively predicted by self-evaluation, β = .25 (.06), $p < .05$ and self-improvement, β = .32 (.05), $p < .05$. Negative affect was negatively predicted by self-improvement β = .15 (.07), $p < .05$. A significant negative interaction

between PRSI and self-evaluation was also identified β = -.15 (.05), $p < .05$ for negative affect. Simple slope analysis revealed that the relationship between PRSI and negative affect was only significant at high β = -.21 (.08), $p < .001$ conditional values of the moderator (See Figure 5.4) with mean β = -.06 (.06), $p = .32$ and low β = .09 (.08), $p = .25$ level slopes non-significant. Lowest levels of negative affect were seen when both PRSI and self-evaluation were high.

Table 5.3

Multi-level Model Analyses – Motive Effects

	PSC	Self-Efficacy	Positive Affect	Negative Affect
Model 2 intercept	-.02 (.07)	-.01 (.06)	-.03 (.07)	-.07 (.06)
PRSC	.45 (.06)*	.39 (.05)*	.36 (.05)*	-.23 (.06)*
PRSI	.03 (.06)	.00 (.05)	-.01 (.05)	-.06 (.06)
PRSC x PRSI				.15 (.04)*
Self-evaluation	.05 (.07)	.23 (.07)*	.25 (.06)*	.02 (.08)
Self-improvement	.02 (.06)	.15 (.06)*	.32 (.05)*	-.15 (.07)*
Self-enhancement	.05 (.06)	.08 (.05)	.05 (.05)	.06 (.06)
PRSI X EVS	.	.		-.15 (.05)*
Deviance	774.22	675.77	647.18	758.78

*$p < .05$

Note. PRSC = perceived relative standing in class; PRSI = perceived relative standing compared to a chosen individual; EVS = self-evaluation; PSC = physical self-concept.

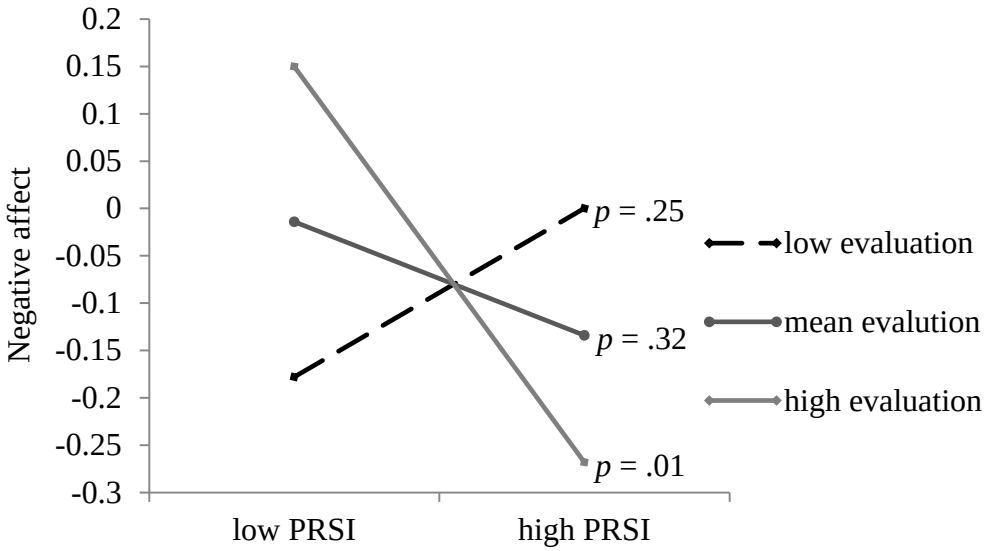

Figure 5.4 Regression slopes depicting interaction between PRSI and self-evaluation on negative affect. *Note.* PRSI = Perceived ability compared to a chosen individual

Behavioural regulations.

Autonomous motivation positively predicted both self-efficacy (.49 [.06] $p < .05$) and positive affect (.55 [.05] $p < .05$), whilst no main effects for PSC and negative affect were found. Controlled regulation negatively predicted PSC (-.16 [.06] $p < .05$) and positively predicted negative affect (.19 [.06] $p < .05$), with no main effects for self-efficacy or positive affect. Amotivation was negatively associated with positive affect (-.16 [.05] $p < .05$) and positively associated with negative affect (.16 [.07] $p < .05$), with no main effects identified for PSC or self-efficacy (See Table 5.4). Furthermore, one significant interaction was identified. The relationship between PRSC and negative affect was moderated by controlled motivation (-.11 [.05] $p < .05$). Negative affect was highest amongst participants who were low in PRSC and high in controlled regulation (See Figure 5.5). Simple slope analysis indicated that the relationship between PRSC and negative affect was only significant at mean $\beta = -.19$ (.05), $p < .001$ and high (+1 SD) $\beta = -.35$ (.06), $p < .001$ conditional values of the moderator and non-significant at low $\beta = -.03$ (.06), $p = .64$ levels of the moderator.

Table 5.4

Multi-level Model Analyses – Moderation of Behavioural Regulations

	PSC	Self-efficacy	Positive Affect	Negative Affect
Model 3 intercept	-.03 (.06)	.02 (.04)	.02 (.04)	-.08 (.06)
PRSC	.46 (.06)*	.26 (.05)*	.22 (.04)*	-.14 (.06)*
PRSI	.03 (.06)	.06 (.05)	.01 (.04)	.00 (.06)
PRSC x PRSI				.10 (.04)*
Autonomous	.07 (.08)	.49 (.06)*	.55 (.05)*	-.09 (.08)
Controlled	-.16 (.06)*	-.04 (.04)	.01 (.04)	.19 (.06)*
Amotivation	.00 (.07)	-.09 (.05)	-.16 (.05)*	.16 (.07)*
PRSC X Cont				-.11 (.05)*
Deviance	725.75	565.05	526.72	690.01

*$p < .05$

Note. PRSC = perceived ability compared to the class; PRSI = perceived ability compared to a chosen individual; Cont = controlled regulation; PSC = physical self-concept.

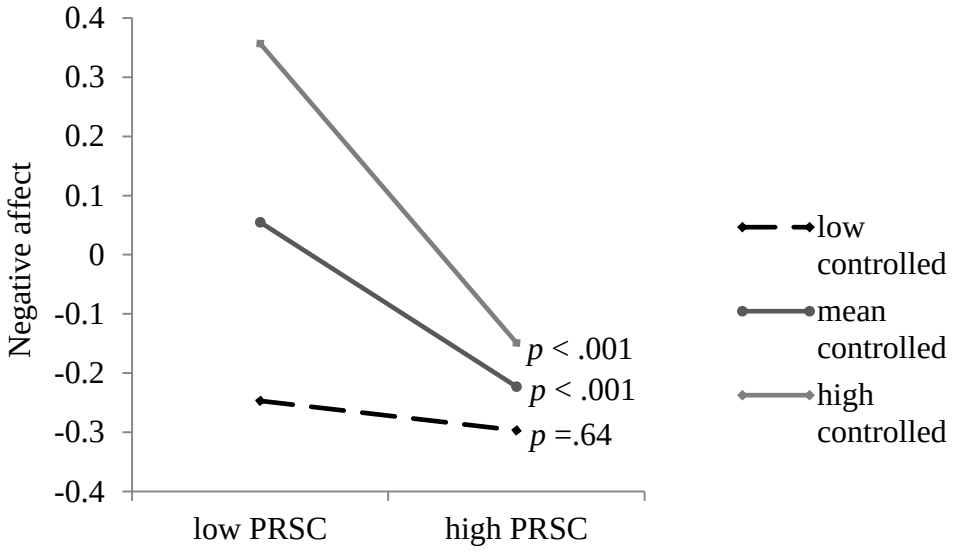

Figure 5.5 Regression slopes depicting interaction between PRSC and controlled regulation on negative affect. *Note.* PRSC = perceived ability compared to the class.

Discussion

The purpose of the present study was three-fold. Firstly, it examined the relationships between two social comparison frames of reference and four important educational outcomes in PE. Secondly, this study aimed to determine the main effects of motives for comparison

and if these moderated the relationships between social comparison and the dependent variables. Finally, this study sought to bring self-determination theory (Deci & Ryan, 2000) and social comparison theory (Festinger, 1954) together by assessing adolescents' motivational regulations and examining if these interacted with comparisons to influence outcomes.

Frames of Reference and Motives for Comparison

Previous research (Barnes & Spray, 2013; Chanal & Sarrazin, 2007) has demonstrated that investigating multiple frames of reference is essential if researchers are to progress knowledge and understanding of comparison processes. Furthermore, Locke (2007) demonstrated that group perceptions were more influential than comparison with an individual, whereas Buckingham and Alicke (2002) identified that comparisons with an individual could moderate outcomes of comparing with a generalised other. In the present study, the generalised other measured using perceived ability compared to the class independently accounted for variance in all the dependent variables, whereas perceived relative standing compared to an individual showed no main effects supporting Locke's (2007) findings . There were, however, three interactions between perceived relative standing in class and perceived relative standing compared to an individual. The interactions for both self-efficacy and positive affect indicated that the most adaptive outcomes for individuals were experienced when perceived ability in class was high and ability compared to an individual was low. These findings indicate that individuals who are relatively able within the class, but are not as able as a chosen individual experience higher levels of positive affect and self-efficacy than those who are high in both perceived relative standing in class and perceived relative standing compared to an individual. This links to previous research (Barnes & Spray, 2013) which found a similar - but significant only at .10 level - relationship for disaffection, where individuals who were highest in both perceived ability in class and perceived ability compared to an individual seemed to begin to disengage in the lesson. These results may indicate that adolescents who believe they are more able compared to multiple frames of reference, lose interest and are not able to see where their areas of improvement lie. This may result in reduced levels of positive affect and self-efficacy and an increase in disaffection.

Finally regarding frames of reference, this study advanced previous research by developing a four item measure to assess perceived relative standing in class which showed good internal reliability and factor structure. These items may be used in the future by other researchers wishing to determine perceived relative standing in class in adolescent samples.

In addition to providing a multi-item scale for assessing perceived ability in class, this study also assessed adolescent's motives for comparison using a multi-item scale developed for the present investigation. The preliminary analysis advances previous knowledge concerning motives because it demonstrates that the three motives (improvement, evaluation and enhancement) can be considered as independent factors.

This study extends previous research (Barnes & Spray, 2013; Butler, 1992; Lubbers et al., 2009) by providing evidence that self-evaluation and self-improvement motives lead to adaptive outcomes, whereas self-enhancement does not directly effect any of the outcomes under investigation. Furthermore, the lack of evidence for direct relationships between motives and physical self-concept could suggest that there are other motives such as proximity which influence variables such as this or that physical self-concept is simply not explained by, or associated with, any motive for comparison.

In addition to these main effects, this study extends previous research by providing evidence of a negative interaction between perceived relative standing compared to an individual and self-evaluation where highest levels of negative affect were found when perceived ability compared to an individual was low and evaluation was high. The relationship was, however, only significant at high levels of evaluation which suggests that it is the interaction between perceived ability compared to a chosen individual and high evaluation which is important in determining negative affect. This interaction demonstrates that when a comparative other is seen as more able and the comparer is motivated to evaluate, that this evokes a negative response from the comparer. This could be due to the comparer seeing the higher performer as a standard which the comparer believes is unattainable which serves to boost negative affect. It seems, therefore, that motives directly influence outcomes, but do not (with the exception of the interaction identified for negative affect) moderate the effects of comparative evaluations on the outcomes investigated in this study.

In summary, the present study has demonstrated that motives can play a role in determining different outcomes. Future research should endeavour to continue to unpick the relationships between motives, social comparisons and other dependent variables because the present picture regarding the influence of motives remains unclear.

Moderating Role of Behavioural Regulations

The third purpose of this study was to combine self-determination theory (Deci & Ryan, 2000) and social comparison in order to examine whether adolescents' behavioural regulations (perceived locus of causality) moderated the relationships between comparisons

with two frames of reference and the dependent variables. Relationships between the behavioural regulations and the dependent variables varied, with one interaction identified.

Results provide evidence for the importance of both social comparisons and behavioural regulations in predicting important educational outcomes. Furthermore, the interaction highlights how social comparison and behavioural regulation jointly influence negative affect. Specifically, negative affect was highest when perceived relative standing in class was low and controlled regulation was high. Furthermore, this interaction demonstrates that when controlled regulation is low, the relationship between perceived ability in class and negative affect is non-significant. This interaction extends previous research by demonstrating how theories can combine to help explain variance in dependent variables and assist researchers in untangling the complex relationships that exist and influence adolescent's experiences and well-being/feelings in physical education.

Implications for Practice

This study has demonstrated that the class context is influential in determining physical self-concept, self-efficacy, and positive and negative affect. As the volume of research investigating social comparison grows, it seems important that teachers and others working in the school environment are made aware of the role that perceived ability in class can play as it may help to inform their practice. For example, teachers who use class-wise comparisons may no longer choose to do so when told that it may actually have detrimental effects on many of the pupils in the class. In contrast, this study suggests that teachers could try and encourage comparisons with more able individuals which are motivated by the desire to self-improve as these may serve to boost positive affect. The real problem is that social comparison is a double-edged sword – it has many benefits, but also many negative outcomes and teachers who use social comparisons should do so wisely.

Furthermore, the present study provides the first evidence of direct relationships between motives for comparison and positive outcomes. Given the findings regarding motives, teachers could try to encourage adolescents to compare for reasons of self-improvement rather than self-enhancement or self-evaluation. Additionally, teachers could use tasks or drills that decrease opportunity for social comparisons, particularly with the rest of the class.

Moreover, the moderation of controlled regulation of the relationship between social comparison and negative affect suggests that teachers should be encouraged to create a learning environment which decreases controlled motivation. To achieve this, teachers could be encouraged or trained to change their class practices to ensure that adolescents feel that

their motivation is less controlled in physical education lessons. The results of the present study further suggest that this focus on reducing controlled motivation would also serve to directly boost physical self-concept and lower negative affect. This supports and extends previous research which has demonstrated the negative effects of controlled regulation on outcomes in physical education and the positive effects of autonomous regulation (e.g. Mouratidis et al., 2008; Ntoumanis, 2001; Standage, et al., 2005).

Limitations and Future Directions

The present study has some limitations. Firstly, although the hypotheses and direction of relationships were based on previous longitudinal research investigating physical self-concept (Chanal et al., 2005; Chanal & Sarrazin, 2007), the present study is cross-sectional and so, causality cannot be assumed and it must accept that the relationships may be reciprocal. These relationships may, therefore, be interpreted in the opposite direction from those proposed. Now that relationships between perceived relative standing in class, motives and these consequences have been identified, future research can assess these variables longitudinally and redress this gap in our knowledge. Secondly, the study employed only self-report measures which may have led to inflated relationships due to shared method variance. Future research would benefit from including teacher or parental reports to supplement self-report measures. Thirdly, one of the scales (external regulation) showed weak reliability which led to its removal from analysis and subsequently meant that it was not possible to perform a more in-depth analysis of the individual behavioural regulations. Future research examining these regulations in more detail would be useful, particularly given that there was an interaction identified in the present study.

The present study was one of only a handful which has investigated social comparison processes in physical education. Not only has this study investigated important outcomes in physical education, it has provided evidence for the factor structure and reliability for multi-item scales for perceived relative standing in class and motives for comparison which other researchers can use in their research in the future. In addition, this study sought to bring self-determination theory and social comparison together in order to asses if this can enhance our understanding of the dependent variables in question. Research which continues to integrate theories in order to explain variance in outcome variables is essential if we are to understand how important educational outcomes are influenced by an array of factors. Furthermore, future research investigating other moderators and environmental class level variables is warranted as these may help to explain and enhance our understanding of both the direct and indirect relationships between social comparisons, motives and important educational

outcomes. Finally, focusing on whether certain physical education tasks and activities increase the use or impact of social comparisons would be a useful accomplishment for researchers as this would provide evidence for teachers on which practices or activities provide the 'best' outcomes for young people in physical education.

In conclusion, this study provides new insight into several aspects of social comparison in physical education. It demonstrates that social comparisons are engaged in and driven by multiple motives in adolescence; it also highlights the direct effect of social comparison with two frames of reference on four important educational outcomes; moreover, it demonstrates that the effects of social comparison are, in some instances, moderated by motives and behavioural regulations. This moderation by behavioural regulations implies that social comparison theory should not be studied in isolation, but with consideration of other theories which may help explain variance in key outcomes.

Chapter VI

Study 4

Social Comparison in Physical Education: An investigation of the interaction between social comparison, class climate, perceived autonomy support and four dependent variables

Introduction to Chapter VI

The following chapter details the final piece of empirical research which was completed to form this thesis. This study focused on the same frames of reference (class and individual) as studies 2 and 3, providing further support for the importance of the class and individuals in predicting outcomes in physical education. The study detailed within this chapter served to replicate that contained within Study 3 and further examine the moderating role of the environment as well as behavioural regulations. Environmental variables were added to this study for a number of reasons. Firstly, because Study 1 highlighted the importance of teacher behaviours (which in turn influences the physical education environment) which suggests that adolescents recognise the role of their environment can play in influencing comparison behaviours. Secondly, two highly researched motivational theories (self-determination and achievement goal) provide insight into the important role that the environment can play in influencing motivation which could also influence the impact of social comparison on individuals within a class environment.

Abstract

Physical education is an important developmental context within which, young people are provided with multiple opportunities for comparison with other members of the class. The present study sought to determine the direct role of comparison with two frames of reference in physical education and motives for comparison on pupils' physical self-concept, self-efficacy and positive and negative affect. Additionally, this study examined the moderating role of behavioural regulations and two environmental variables (motivational climate and perceived autonomy support) in predicting the four outcomes. Five hundred and eighty one adolescents (M_{age} = 14.30, *SD* = 1.05 years) from two schools in England took part in the study. Analysis of variance revealed the importance of different motives in predicting all outcomes. Multi-level analysis demonstrated that ability compared to the class was important in predicting all outcomes, with ability compared to an individual moderating this relationship only in the case of negative affect. Nine interactions involving behavioural regulations, motivational climate and comparative evaluations (with the class and an individual) were identified. The findings indicate the need for future research examining multiple aspects of social comparison simultaneously in addition to individual and environmental factors which may moderate the influence of comparative evaluations.

Keywords: Social comparison; frame of reference; physical self-concept; physical education; self-determination theory; motivational climate

Introduction

In order to evaluate their capabilities, humans engage in comparisons with both objective and subjective standards (Festinger, 1954). It is now widely accepted that these comparisons are an unavoidable part of human life (Gilbert et al., 1995) and serve an innate drive to evaluate one's abilities (Festinger, 1954). This process of comparing oneself with others is termed social comparison with research in this area predominantly focusing on adult populations. Although there is evidence that adolescents engage in (Chanal & Sarrazin, 2007), and are affected by comparisons (Barnes & Spray, 2013), there remains a lack of clarity surrounding adolescents' use of, motives for, and consequences of social comparisons. Furthermore, there is only one study to date (Study 3) which attempts to utilise other theories which may provide insight into variables which moderate the effects of social comparison processes.

To date, the majority of research investigating adolescents' comparisons has been completed within the school environment with a focus on academic subjects (Marsh & Hau, 2003). This leaves school practitioners, physical education (PE) teachers and researchers with a lack of understanding and knowledge regarding social comparison in physical education, a key developmental setting where adolescents' competency beliefs are developed and informed. The present study, therefore, sought to examine: adolescent's motives for comparison in PE; the relative importance of two frames of reference; four important educational outcomes (physical self-concept, self-efficacy, negative affect, positive affect); and the moderating role of adolescents' behavioural regulations, perceived autonomy support (Deci & Ryan, 2000) and motivational climate (Ames, 1992).

Frames of Reference and Motives for Comparison

For a comparison to take place, there must be a standard, target or frame of reference with which to compare. Initially it was hypothesised that when wishing to evaluate ability, objective standards (e.g. grade) would be chosen over subjective standards and only when no objective standard was available, would subjective targets be used (Festinger, 1954). Research completed since Festinger (1954) proposed this hypothesis has demonstrated, however, that subjective standards are in fact used even in the presence of objective information and that comparison with subjective standards may be preferred to comparing with an objective target (Gilbert et al., 1995; Klein, 1997; 2003). Within physical education, research investigating frames of reference has focused on the class, individuals and small groups within the class (Barnes & Spray, 2013; Chanal et al., 2005, Chanal & Sarrazin, 2007), however there are other targets with which adolescents compare (See Study 1, p.75).

The findings from research investigating different frames of reference in PE indicate that comparisons with the class are more influential than those with an individual or small group (Barnes & Spray, 2013), but that comparisons with multiple frames of reference may interact to influence different outcomes. For example, Chanal and Sarrazin (2007) found that the class average was negatively predictive of grade, but that the small group standard was positively predictive of grade. Furthermore, Barnes and Spray (2013) identified an interaction between ability compared to the class and an individual when predicting engagement in the PE lesson. The findings from these studies in PE have supported research in other areas of psychology (Locke, 2007) which propose that the generalised other may be more influential in determining outcomes than comparisons with an individual, but that comparisons with a single 'other' may negate some of the negative impact of comparing with a generalised other (Buckingham & Alicke, 2002). In summary, these results indicate the need for further research examining combined influences of frames of reference on pupil outcomes.

Research investigating motives for comparison in adolescent samples (Barnes & Spray, 2013; Lubbers et al., 2009; Study 3) has provided mixed results. Lubbers et al. (2009) demonstrated that children engage in comparisons for many different reasons including that of proximity. Additionally, these authors were able to find similarities between adolescents' motives for comparison and those which have previously been identified in adult samples, namely self-enhancement and self-improvement (Helgeson & Mickleson, 1995; Wood, 1989). These two motives for comparison have received attention in the social comparison literature alongside Festinger's (1954) self-evaluation motive, but have yet to be tested extensively in adolescent and child samples. Barnes and Spray (2013) investigated motives for comparison and found no relationship between these and engagement or disaffection in PE, or physical self-concept. In contrast, the results detailed in Study 3 indicate that self-evaluation and self-improvement were positively associated with self-efficacy and positive affect, whilst self-improvement was negatively associated with negative affect. No relationships were identified for self-enhancement. Previous research provides some insight into adolescent motives, however, on reviewing the evidence base which includes the results in Studies 2 and 3, it was decided that assessing motive dominance could provide additional insight into motives for comparison. To address this gap in knowledge, a motive dominance measure was developed for the present study.

Consequences of Comparison

In order to provide practical implications which help teachers and individuals working with adolescents, it is essential that researchers examine various consequences of social

comparison in order to determine if social comparisons are attributable for changes in important educational variables. Given the Government's focus on physical activity and the role that PE plays in development of physical capabilities and long term participation in physical activity (Coakley & White, 1992; Löfgren, Daly, Nilsson, Dencker & Karlsson, 2013), it is essential that researchers determine what factors lead to positive and negative outcomes in this context. To date, research involving social comparison has shown that comparisons with the class, individuals and a small group within the class are associated in various ways with physical self-concept (Chanal & Sarrazin, 2007), grade, free time physical activity participation (Trautwein et al., 2008), engagement, disaffection (Barnes & Spray, 2013), self-efficacy and positive and negative affect (Study 3). To summarise these findings, the research has: predominantly focused on physical self-concept; demonstrated that the frame of reference is key in determining the outcome; indicated that social comparisons have both positive and negative consequences; and shown that social comparison plays a role in determining many different outcomes. Furthermore, there are only a handful of studies which attest to these findings and replication in multiple samples is needed in order that firm conclusions can be drawn and recommendations made.

More specifically, Trautwein et al. (2008) investigated the reciprocal relationships between being a member of a class with a high average ability, physical activity, physical self-concept and PE grade, with those who were members of a high average ability class reporting lower levels of physical activity, but higher grades. Barnes and Spray (2013) found that those who perceived themselves to be highly able within the class experienced higher levels of physical self-concept, engagement and lower levels of disaffection. Additionally, in the previous Study (3) self-efficacy and positive and negative affect were shown to be associated with social comparisons where high perceived ability in class led to higher levels of self-efficacy and positive affect and lower levels of negative affect. In order to replicate and add further weight to these findings, the present study also examined physical self-concept, self-efficacy and positive and negative affect.

Physical self-concept is a hierarchical multi-faceted construct which defines the way a person feels about him/herself, whereas self-efficacy (Bandura, 1977) is considered to be a cognitive judgement and to be more situation specific (Bong & Clark, 1999). Both physical self-concept and self-efficacy (Zimmerman, 2000) are considered important educational outcomes because they are linked to physical activity (Trost et al., 2001). Previous research (Marsh, Walker & Debus, 1991) proposes that evaluative comparisons are more important in determining self-concept than self-efficacy. The results detailed in Study 3, however,

contradict this proposition and suggest that comparative evaluations are equally important in predicting both physical self-concept and self-efficacy. Furthermore, in Study 3 it was identified that motives for comparison were directly related to levels of self-efficacy, but not physical self-concept. This highlights the differing role that social comparison processes play in determining different outcomes and indicates a need for further investigation of these variables and replication of previous findings.

Research investigating the affective consequences of social comparison in the school environment and more generally in psychology, has focused on discrete emotions (Buunk et al., 2005; Smith, 2000; Vrugt, 1994) that may arise from comparisons. However, the findings from Study 1 suggest that a more general sense of feeling/affect is experienced from engaging in multiple comparisons in physical education with the results detailed in Study 3 further supporting this supposition. The present study, therefore, sought to replicate the research in Study 3 by examining the relationship between comparative evaluations (with the class and a chosen individual) and positive and negative affect. In addition, the present study will also extend previous research by including environmental variables which may interact with social comparisons in predicting the dependent variables.

Individual and Environmental Moderators of Social Comparison Processes

Previous research (Study 3) has sought to examine the role of self-determined regulations and motives in moderating the relationship between social comparisons and physical self-concept, self-efficacy, and positive and negative affect. The findings suggest that these regulations do not moderate the relationships except in very specific instances. These instances include the relationship between perceived ability compared to the class and negative affect which was moderated by controlled regulation, but the relationship was not significant when controlled regulation was low. Given that Study 3 was the first research to examine the moderating role of behavioural regulations, the present study sought to replicate the direct effects of behavioural regulations and the moderating role of controlled regulation. Furthermore, to extend previous research and knowledge concerning social comparison processes, two environmental variables were examined. These environmental variables - motivational climate and perceived autonomy support - are embedded within two well researched theories, achievement goal theory (Ames, 1992) and self-determination theory (Deci & Ryan, 2000).

Achievement goal theory.

Developed from motivational research in education, achievement goal theory (AGT) (Ames, 1992; Nicholls, 1984) proposes that individuals pursue goals based on their view of

competence. Self-referenced, task mastery based competence is demonstrated through the pursuit of task/mastery goals, whereas competence based on a desire to outperform others is demonstrated through the pursuit of performance/ego goals (for reviews see Elliot, 2005; Braithwaite et al., 2011). These two goal groups have been further sub-divided into approach and avoidance goals (e.g. Elliot & Harackiewicz, 1996). Research has subsequently demonstrated that environmental factors such as teacher behaviours may influence the pursuit of different goals (Ames, 1992). This is termed motivational climate (Ames, 1992; Goudas & Biddle, 1994). Within physical education motivational climate has been researched extensively. This is demonstrated by Braithwaite et al.'s (2011) review of intervention studies which have attempted to manipulate motivational climate in the pursuit of positive outcomes in physical education. Climates in physical education that emphasise effort and task mastery are known as mastery/task climates and those which emphasis comparisons with others and outperforming others are known as performance/ego climates.

Initially, it was proposed (Ames, 1992) that individuals who pursue task goals do not engage in social comparisons with others, however, this view has subsequently been challenged (Butler, 1992; Darnon et al., 2010; Régner et al., 2007), with evidence which now suggests that social comparison information is indeed sought by individuals who pursue mastery goals (Régner et al., 2007). Also, when multiple goals are endorsed, the higher the performance approach goal endorsement, the stronger the link between mastery goals and social comparison orientation (how likely someone is to look for/use social comparison information). Given that motivational climate may affect goal endorsement (Braithwaite et al., 2011), and that social comparisons may be utilised by individuals who pursue both task and ego goals, the present study aimed to investigate if task and ego climates interact with comparative evaluations with the class or a chosen individual to predict the four dependent variables under investigation. At present the proposal in AGT research - within physical education - has been that normative comparisons engaged in when performance goals are pursued are reinforced/encouraged through a performance climate which highlights the need to compare with and to be better than others. In contrast a task climate and task goals focuses more on self-improvement and development. Given the postulations and the previous research which now suggests that social comparison may occur within task climates as well, the aim of this study was to test whether social comparisons with the class and individuals could interact with task and ego climates to examine if AGT is indeed correct, or perhaps that it needs extending to include the provision for comparative evaluations with others under a task climate as well as a performance climate. No research to date has specifically tried to

link or investigate both comparative evaluations and motivational climate in the same study. One of the aims of the present study, therefore, was to begin to redress this gap in knowledge.

Self-determination theory.

Self-determination theory (Deci & Ryan, 2000) proposes that individuals are driven by three basic needs: competence, autonomy and relatedness.[15] When these needs are met, humans experience well-being. Within the present study, two aspects of self-determination theory are examined, firstly behavioural regulations and secondly, perceived autonomy support. Behavioural regulations encompass individuals' motivation for engaging in a task. These regulations are thought to be on a continuum from amotivation through various forms of extrinsic motivation (introjected, identified, integrated) to the most self-determined, intrinsic motivation (Deci & Ryan, 1985). Perceived autonomy support is an individual's perception of the environment that the teacher provides. Similar to motivational climate, the tasks and behaviours of the teacher will inform the perception of autonomy support. A teacher who is autonomy supportive will acknowledge the pupils' perspectives and provide feedback and information for students when boundaries or limits are set. The contrast to autonomy support is a more controlling interpersonal style where the teacher may coerce or put pressure on students to behave in certain ways. Research in physical education has shown that perceived autonomy support is related to adaptive outcomes (Hagger et al., 2003; Taylor et al., 2010) such as increased leisure time physical activity and increased engagement and effort within the PE lesson. In contrast, more controlling environments have been shown to lead to maladaptive outcomes such as boredom (Mouratidis et al., 2008; Ntoumanis, 2001). Perceived autonomy support was included and examined as a moderator within this study, to investigate whether autonomy support could mitigate or a lack of it increase the impact of social comparison in physical education. Given that perceived autonomy support is focused on the perception of teacher behaviours, it was included partly because it has been related to levels of well-being/affect in previous research and also due to the findings in Study 1 which suggested that the teacher can influence the environment and set up certain situations which encourage or evoke social comparison. One of the aims of this study was, therefore, to examine if differing levels of autonomy support were able to negate any of the negative outcomes of comparison. A further aim of the present study was to replicate the findings

[15] Competence is built on the desire that we wish our efforts to be effective and that we attain a desired outcome. (White, 1959).Autonomy is the need to determine one's behaviour (Deci & Ryan, 2000). Relatedness refers to "the need to feel connected with others," (Deci & Ryan, 2000, p. 231).

Study 3 in examining whether behavioural regulations moderated the impact of class and individual comparisons on outcomes for individuals.

The Present Study

There were several objectives of the present study. Regarding motives for comparison there were three aims: to examine if adolescents express a dominant motive; to examine the role of motives in directly predicting the dependent variables; and to assess whether motive dominance interacted with comparative evaluations to influence the dependent variables. Although this is the first study to examine motive dominance, several hypotheses were made based on the findings from Study 3 and previous research (Helgeson & Mickleson, 1995; Wood, 1989). The main hypothesis was that improvement dominance and/or evaluation dominance would result in positive consequences i.e. higher self-efficacy and positive affect, whilst there would be no direct effects of self-enhancement dominance or no dominance. Furthermore, post hoc interaction tests were planned to examine if motives moderated the predicted relationships between comparative evaluations with the class/individuals and the dependent variable.

Regarding comparative evaluations, the main aim was to examine the simultaneous role of comparison with a generalised other (class) and an individual other. Based on previous research (Barnes & Spray, 2013; Buckingham & Alicke, 2002; Chanal et al., 2005; Locke, 2007; Study 3), it was proposed that the generalised other would be more influential in determining outcomes, but that the individual other would also play a smaller yet important moderating role particularly in the cases of positive affect, self-efficacy and negative affect (based on the results from Study 3).

Regarding individual and environmental moderators, it was proposed that behavioural regulations (controlled regulation) would interact with perceived standing in class to determine negative affect. This prediction was based on the findings in Study 3. Furthermore, based on previous research in both AGT and social comparison, it was hypothesised that task climate and perceived autonomy support would both interact with comparative evaluations to negate the negative impact of low perceived ability in class and that an ego climate which supports the use of normative comparisons, would serve to exacerbate any negative influences of evaluations on the dependent variables.

Method

Participants

Five hundred and eighty one adolescents (271= males, 310= females; M_{age} = 14.30, *SD* = 1.05 years) in years 8 and 9 from two schools in England took part in the study. The

number of pupils eligible for free school meals was below average for both schools indicating above average socio-economic status of the pupils attending the schools. 86.9% of the sample classified themselves as white, 7.4% as asian, 0.7% as black and 3.6% indicated identifying with another ethnicity and 1.3% were of undisclosed ethnicity.

Procedures

Following the University ethical guidelines, letters were sent to headteachers to gain their permission for the study to be carried out (Appendix W). Once approval was forthcoming, ethical approval was given by the ethics board (Appendix X). The headteacher of school one then contacted his staff members to arrange the participation of school pupils whilst the head of physical education was contacted for permission to carry out the study at school two. Once consent from the staff/department heads was obtained, parental opt-out forms (Appendix Y) were sent via the schools to parents who were given two weeks to return the form if they wished their child to be excluded from the study. Participants at School one completed the questionnaire during personal and social education lessons at the request of the headteacher, whilst pupils at School two completed the questionnaire in their normal physical education lessons. An explanation was given to participants detailing how to complete the questionnaire. Participants were provided with an information sheet (Appendix Z) and were informed that they could ask questions at any point whilst completing the questionnaire. Student assent was obtained by each participant signing a willingness to participate form before completion of the questionnaire (Appendix AA). All participants were re-assured that their PE teachers would not be able to access their answers and that their responses were anonymous. Each participant completed a multi-section questionnaire (Appendix BB) in approximately 20 to 30 minutes.

Measures

Personal information.

Participants were asked to indicate their school name, year group, physical education teacher, gender, age, ethnic group.

Perceived locus of causality.

The revised perceived locus of causality in physical education scale (PLOC-R) was utilised to assess the behavioural regulations which underlie adolescents' participation in PE. This scale has been previously validated (Vlachopoulos et al., 2011)[16] and now consists of 19 items. This measure breaks down extrinsic motivation into three categories: external

[16] Self-integration is not measured because research has shown that young people are unable to achieve a sense of self-integration (Vallerand, 2001).

regulation; introjected regulation; and identified regulation, in addition to providing items assessing intrinsic motivation and amotivation. A 5 point Likert-type scale from 1 (totally disagree) to 7 (totally agree) with the midpoint 4 defined as 'in between' is provided for responses to the stem 'I participate in PE…'. Example items include 'because PE is fun' (intrinsic motivation), 'because it is important to me to try hard in PE' (identified regulation), 'because it would bother me if I didn't' (introjected regulation), 'because that's the rule' (external regulation) and 'but I don't really know why' (amotivation).

Comparative evaluations.

This study sought to investigate comparative evaluations with two frames of reference within the PE class, an individual and the class in general. In order to measure participant's perception of their ability in comparison to their class (PRSC), the four item measure developed in Study 3 was used. Participants were asked how good they perceived themselves to be compared to most of their classmates in PE responding on a 5 point Likert-type scale where 1 signified much worse, 3 the same and 5 much better. A tick box was added that participants could use to indicate not comparing with the class. This box was added because it was not possible to ascertain in the previous two studies why participants had been leaving questions blank. For example, it could have been missing data or that the participants were unsure of their comparative ability.

To ascertain if the participant compared with an individual in the class, the questionnaire then asked the student to identify one person in their class with whom they typically compared. The word compare was defined for the participants as 'someone who you may look for similarities and differences with whilst doing an activity'. Adolescents were asked to tick a box if they did not compare with anyone. To measure perceived ability (relative standing) in comparison to the individual (PRSI), participants were then asked to respond to the following item, adapted from Huguet et al.'s (2001) comparative evaluation item used to measure standing in class: 'How good do you feel you are in comparison to the person you named in question 1a?' Responses to this question were on a 5 point Likert-type scale from 1 to 5 where much worse = 1, the same = 3 and much better = 5.

Motives for comparison with a chosen individual.

In order to examine motives and motive dominance, a forced choice measure was developed. This was achieved by adapting Van Yperen's (2006) measure of preferred goal choice. This enabled identification of whether participants possessed a dominant motive for comparison. Participants were given the following information, 'people compare with many different students in PE, those who might be better than them, those who they might feel are

the same ability and those who aren't as good as them.' Following this participants were told to circle either A or B which had different answers to the stem 'In PE class, it is more important to compare with my classmates…'. This stem was followed by six pairs of statements for example 1. A…to see how I'm doing or B…to learn what to do/what not to do. Each motive was represented 3 times.

Positive and negative affect.

The multi-item Positive and Negative Affect Scale (PANAS; Watson et al., 1988) was utilised to provide two overall scores, one for positive affect and one for negative affect. Participants were given 20 words to respond to (including strong, upset, nervous) which followed the instruction: 'Please indicate to what extent you have felt like this generally over the last few weeks in your PE lessons.' The response scale was defined, with numbers 1-5 represented as follows: 1, very slightly or not at all; 2, a little; 3, moderately; 4, quite a bit; 5, extremely. This measure has shown acceptable reliability and factorial validity (Watson et al., 1988).

Self-efficacy.

Self-efficacy was assessed using Jackson et al.'s (2012) 9-item measure. Participants responded to the items on a 5 point scale (1 = no confidence at all; 2 = low confidence; 3 = moderate confidence; 4 = high confidence; 5 = complete confidence) which followed the stem 'please honestly rate your confidence in your ability at this moment in time to…'. Statements included, 'try your hardest in every PE class' and 'be physically fit enough to always perform well in PE'. These items have shown good factorial structure and validity (Jackson et al., 2012).

Physical self-concept.

Adolescents completed the global physical self-worth scale from the short version of the Physical Self Description Questionnaire (Marsh et al., 2010) as an assessment of physical self-concept. This measure consists of three items: Physically, I am happy with myself; Physically, I feel good about myself; I feel good about who I am physically. Responses were collected using a Likert scale of 1- false to 6 - true. This scale has shown adequate reliability and factorial validity in adolescent samples (Marsh et al., 2010).

Perceived autonomy support.

To measure perceived autonomy support in physical education, adapted items from the perceived autonomy support scale (a subsection of the sport climate questionnaire, Deci, 2001) were used. This scale has been used in previous research where it showed good internal reliability (Lim & Wang, 2009). The six items were adapted by editing the smallest number

of words possible e.g ‘I feel that my *coach* provides me with choices and options’ was changed to ‘I feel that my *teacher* provides me with choices and options’. Responses to these items were collected using a 7 point Likert-type scale with anchors 1 (strongly disagree) to 7 (strongly agree) with the midpoint left undefined. Students were asked to read each statement and then circle the number that was most correct. If participants had more than one teacher then they were instructed to answer these questions in relation to the teacher with whom they spent the most time.

Motivational climate.

Motivational climate was assessed using ten items adapted from the motivational climate scale for youth sports (Smith, Cumming & Smoll, 2008). This scale has shown acceptable reliability and factorial validity (Smith et al., 2008). Items were adapted by changing the smallest number of words possible. For example: ‘the coach made players feel good when they improved a skill’ was adapted to read, ‘the teacher makes students feel good when they improve a skill’; ‘the coach spent less time with the players who weren’t as good’ was adapted to read, ‘the teacher spends less time with students who aren’t as good; ‘the coach encouraged us to learn new skills’ was adapted to read, ‘the teacher encourages us to learn new skills’. Participants responded to the items using a Likert-type scale from 1 to 5 where, 1 represented not true at all, 3 somewhat true, and 5 very true.

Results

Descriptive Statistics and Scale Reliabilities

Table 6.1 details the intercorrelations, means, standard deviations and Cronbach’s alphas for variables with multi-item scales. Ego orientation demonstrated reasonable reliability. The removal of the 1st item of ego orientation, however, resulted in attainment of a .70 alpha level and the subsequent removal of this item from further analyses. External regulation demonstrated poor internal reliability ($\alpha = .36$) and was not used any further in the analyses. Introjected regulation demonstrated reasonable reliability and was used as the controlled regulation predictor. The autonomous regulation predictor was formed by combining intrinsic and identified items. The remaining multi-item scales showed good internal reliability ($\alpha > .70$). 72.4% of participants indicated comparing with an individual in their PE class. No variables contained 5% or more missing data.

Responses from the forced choice motive questions were combined to provide an overall score for each motive. When the score for one motive was higher than for the other two motives, the participant was assigned to the highest group i.e. the dominant motive. The following combinations resulted in assignment to a dominant group: 4, 1, 1; 4, 2, 0; 3, 2, 1.

Table 6.1

Descriptive Statistics, Intercorrelations and Alpha Co-efficients for all Variables

		1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	***M***	***SD***	**α**
1	PRSC	-											3.17	.94	.94
2	PRSI	.37**	-										3.11	.90	-
3	Autonomous	.39**	.07	-									4.58	1.49	-
4	Controlled	-.07	-.09*	.20**	-								2.81	1.21	.65
5	Amotivation	-.37**	-.06	-.67**	.07	-							2.31	1.31	.80
6	Physical self-concept	.48**	.13**	.47**	-.12**	-.38**	-						3.13	.96	.95
7	Self-efficacy	.51**	.12**	.68**	.02	-.57**	.59**	-					3.59	.78	.91
8	Positive affect	.44**	.15**	.74**	.14**	-.58**	.53**	.75**	-				3.22	.93	.92
9	Negative affect	-.16**	-.01	-.22**	.14**	.31**	-.27**	-.27**	-.05	-			1.48	.63	.87
10	Task climate	.19**	.05	.42**	.11*	-.27**	.28**	.38**	.46**	-.10*	-		3.45	.96	.89
11	Ego climate	-.09*	-.03	-.12**	.07	.18**	-.22**	-.12**	-.13**	.28**	-.27**	-	2.26	.84	.71
12	Autonomy support	-.04	-.01	-.18**	-.03	.14**	-.04	-.15**	-.16**	.05	-.34**	.19**	3.66	1.48	.92

*$p < .05$, **$p < .01$

Note. PRSC = perceived ability in class; PRSI = perceived ability compared to a chosen individual

All other combinations were assigned to the non-dominant group. This resulted in the formation of four motive conditions: evaluation dominant, 17.4% (n=101); improvement dominant, 38.9% (n=226); enhancement dominant, 11.7% (n=68); no-dominance, 27.2% (n=158) with 4.8% (n=28) missing data.

Motives for Comparison and PRSC Groups

To determine the role of motives in both directly predicting the dependent variables and in combination with perceived relative standing in class and compared to an individual, separate ANOVAs (analysis of variance) were run. In order to examine perceived relative standing in class, participants were initially assigned to one of three groups: low PRSC, 'the same' and high PRSC. These groups were formed by assigning participants to a group dependent upon the mean score for PRSC. Any participant who scored below 2.75 was assigned to the low condition and any participant who indicated a score of greater than 3.25 was assigned to the high condition. Participants in between these values were assigned to the similar condition. Analyses of numbers per group indicated that there were unequal numbers of participants in each group. As there were only a few participants within 'the same' condition and motive groups (e.g. n=6), it was decided that this condition would be dropped from further analyses. The remainder of the analyses, therefore, concentrated on investigating PRSC low and high with the 4 motive conditions. Although it was intended that analyses for perceived relative standing compared to an individual (PRSI) could be conducted in the same way as for PRSC, five conditions out of the eight under investigation contained less than 20 participants. Given the low number of participants in the majority of groups, statistical analyses were halted at this point for PRSI and motives.

Analysis of variance.

2 (high/low PRSC) x 4 (evaluation/improvement/enhancement/no dominance) ANOVAs were run to investigate both the main effect and combined effect of PRSC and motives on each dependent variable. Levene's test of equality of variance was non-significant for physical self-concept, self-efficacy and positive affect. This assumption was, however, violated for negative affect. Even when various transformations were performed on the data, variance remained significant and results for negative affect are, therefore, not reported. Post hoc Tukey HSD tests were performed for each dependent variable to examine the differences between motive groups. Means, standard deviations and number of participants per condition for each dependent variable are reported in Table 6.2.

For physical self-concept, there was a significant main effect of perceived relative standing in class ($F(1,422) = 109.50$, $p < .001$, partial $\eta^2 = .21$ and a significant main effect of

motive (F(3,422) = 6.88. p <.001, partial η^2 = .05. There was no significant interaction between PRSC and motive, (F(3, 422) = .18, p = .91, partial η^2 = .00. Post hoc Tukey HSD tests indicated that the mean score for the improvement groups (M = 3.23, SD =.07) was significantly greater than enhancement (M = 2.88, SD= .11), evaluation (M = 2.70, SD = .11) and no dominance groups (M = 2.95, SD = .08). There were no other significant differences between groups.

For self-efficacy, there was a significant main effect of perceived relative standing in class (F(1,411) = 135.88, p <.001, partial η^2 = .25 in addition to a significant main effect of motive (F(3,411) = 6.98. p <.001, partial η^2 = .05. There was no significant interaction between PRSC and motive, (F(3, 411) = 1.06, p = .37, partial η^2 = .01. Post hoc tests indicated that the mean for evaluation (M = 3.36, *SD* = .09) was significantly different to improvement (*M* = 3.58, *SD* = .05), enhancement (M = 3.18, SD = .09) and no dominance

Table 6.2

Means, Standard Deviations and Condition Numbers for 2 x 4 Analysis Of Variance

		Physical self-concept			Self-efficacy			Positive affect		
		Mean	*SD*	N	Mean	*SD*	N	Mean	*SD*	N
Low PRSC	EVS	2.16	.95	23	3.05	.67	22	2.56	.83	23
	IMP	2.76	.93	62	3.13	.71	59	2.78	.84	62
	ENH	2.35	1.02	33	2.67	.99	33	2.18	1.07	32
	No dominance	2.50	.95	43	3.13	.76	44	2.80	.85	44
	Total	2.52	.97	161	3.02	.80	158	2.63	.91	161
High PRSC	EVS	3.24	.91	48	3.67	.67	47	3.42	1.01	45
	IMP	3.70	.72	115	4.03	.56	111	3.62	.73	113
	ENH	3.40	.82	26	3.68	.58	24	3.45	.84	24
	No dominance	3.41	.84	80	4.08	.57	79	3.73	.71	75
	Total	3.50	.82	269	3.95	.61	261	3.60	.79	257
Total	EVS	2.89	1.05	71	3.47	.72	69	3.13	1.03	68
	IMP	3.37	.92	177	3.72	.75	170	3.32	.86	175
	ENH	2.81	1.07	59	3.10	.97	57	2.73	1.16	56
	No dominance	3.09	.98	123	3.74	.79	123	3.39	.88	119
	Total	3.14	1.00	430	3.60	.82	419	3.23	.96	418

Note. PRSC = perceived relative standing in class; EVS = self-evaluation motive; IMP = self-improvement motive; ENH = self-enhancement motive

(*M* = 3.60, *SD* = .06). Furthermore, the mean for enhancement was also significantly lower than improvement (*M* = 3.58, *SD* = .05) and no dominance (*M* = 3.60, *SD* = .06).

For positive affect, there was a significant main effect of perceived relative standing in class ($F(1,410) = 110.85$, $p < .001$, partial $\eta^2 = .21$ and a significant main effect of motive ($F(3,410) = 4.54$, $p < .05$, partial $\eta^2 = .03$. There was no significant interaction between PRSC and motive, ($F(3, 410) = .96$, $p = .41$, partial $\eta^2 = .01$. Post hoc Tukey HSD analysis revealed that the mean for enhancement (*M* = 2.82, SD = .11) was significantly lower than all other conditions; improvement (*M* = 3.20, SD = .07); evaluation (*M* = 2.99, SD = .11); no dominance (*M* = 3.27, SD = .08).

Multi-Level Regression Analyses

Intra-class correlations (ICCs) were calculated for all variables. ICCs for all variables ranged from .01 to .27. Although the range of variance explained at level 2 was less than 10% for 7 out of the 12 variables, multi-level analysis was completed because it is in keeping with the conceptual structure of the study and the nature of the data collected (students nested within classes) (Nezlek, 2008). The first model examined comparative evaluations, the second behavioural regulations as moderators and the third, environmental moderators (motivational climate and perceived autonomy support).

All variables were standardised before the regressions were run. All interaction terms (product term) were left unstandardised (Aiken & West, 1991; Friedrich, 1982). Standardisation was carried out to prevent multi-collinearity between predictors when interactions were entered into the analyses. Analysis was carried out using MLwiN (2.25) (Rashbash et al., 2012).

All predictor variables were fixed to attain model convergence. All interaction terms were entered simultaneously. Non-significant interactions were then removed one at a time and the model re-run. The process of removal was methodical with the least significant removed each time. Once significant interactions were left, only when the change in deviance was significant were the interactions retained in the models.

Comparative evaluations - two frames of reference.

PRSC positively predicted PSC, $\beta = .47$ (.05), $p < .05$, self-efficacy, $\beta = .57$ (.05), $p < .05$ and positive affect, $\beta = .55$ (.05), $p < .05$ and negatively predicted negative affect, $\beta = -.28$ (.06), $p < .05$. PRSI positively predicted negative affect $\beta = .16$ (.06), $p < .05$. A significant interaction between PRSC and PRSI was identified for negative affect, $\beta = .20$ (.04), $p < .05$ (See Table 6.3). The interaction for negative affect indicated levels of negative affect were highest when PRSC and PRSI were both low. Simple slope analysis of this interaction

revealed that at low (-1 *SD*), β = -.48 (.07), $p < .001$ and mean, β = -.28 (.06), $p < .001$ values of the PRSI, PRSC was a significant predictor of negative affect, however, as PRSI increased the power of PRSC became non-significant at high (+1 *SD*) values of the moderator β = -.08 (.07), $p = .26$ (See Figure 6.1).

Table 6.3

Multi-level Model Analyses – Frames of Reference Effects

	PSC	Self-efficacy	Positive Affect	Negative Affect
Model intercept	.04 (.05)	.04 (.06)	.01 (.07)	-.07 (.06)
PRSC	.47 (.05)*	.57 (.05)*	.55 (.05)*	-.28 (.06)*
PRSI	.09 (.05)	.09 (.05)	.09 (.05)	.16 (.06)*
PRSC x PRSI	-.01 (.04)	-.03 (.03)	.00 (.03)	.20 (.04)*
Deviance	894.02	794.52	802.67	943.92

*$p<.05$

Note. PRSC = perceived relative standing in class; PRSI = perceived ability compared to a chosen individual; PSC = physical self-concept.

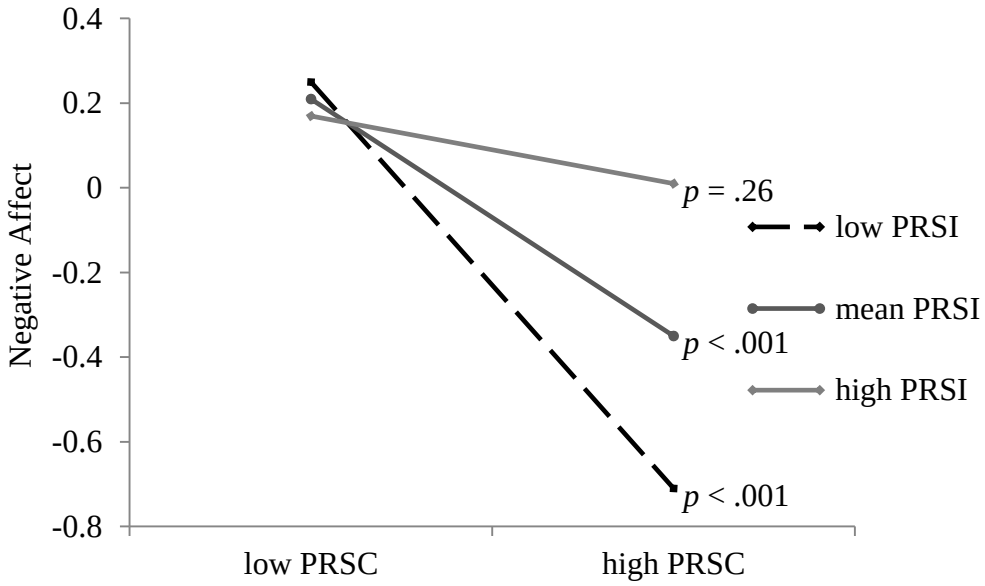

Figure 6.1 Regression slopes depicting interaction between PRSC and PRSI on negative affect. *Note.* PRSC = perceived relative standing in class; PRSI = perceived ability compared to a chosen individual

Moderating influence of behavioural regulations.

Direct effects for the dependent variables are detailed in Table 6.4, however these are not described in detail here as the focus of this study was on the moderating role of

behavioural regulations rather than their main effects. Two significant interactions between comparative evaluations and behavioural regulations were identified, one for self-efficacy β = -.07 (.03), $p < .05$ and one for negative affect β = -.12 (.04), $p < .05$. Self-efficacy was highest when PRSC and autonomy were both high. Simple slopes were significant at low β = .38 (.05), $p < .001$, mean β = .31 (.04), $p < .001$ and high β = .24 (.05), $p < .001$ values of the moderator (See Figure 6.2). Negative affect was significantly predicted by PRSI and amotivation. Lowest levels of negative affect were seen when both amotivation and PRSI were low β = .24 (.08), $p < .01$. Simple slopes were significant at low and mean β = .12 (.05), $p < .05$ values of the moderator only (Figure 6.3) and non-significant at high values β = 0 (.05), $p = 1$. This suggests that the relationship between PRSI and negative affect is only significant at low and mean levels of amotivation.

Table 6.4

Multi-level Model Analyses – Moderation Effects of Behavioural Regulations

	PSC	Self-efficacy	Positive Affect	Negative Affect
Model intercept	.03 (.05)	.09 (.04)	.04 (.04)	-.05 (.05)
PRSC	.38 (.06)*	.31 (.04)*	.23 (.04)*	-.28 (.06)*
PRSI	.07 (.05)	.06 (.04)	.03 (.04)	.12 (.05)*
Autonomous	.16 (.07)*	.46 (.05)*	.51 (.05)*	-.05 (.07)
Controlled	-.16 (.05)*	-.07 (.04)	.03 (.04)	.21 (.05)*
Amotivation	-.05 (.06)	-.07 (.05)*	-.12 (.05)*	.14 (.06)*
PRSC X AUT	-	-.07 (.03)*	-	-
PRSI X AMOT	-	-	-	-.12 (.04)*
Deviance	775.81	585.87	550.67	721.18

*p<.05

Note. PRSC = perceived ability in class; PRSI = perceived ability compared to a chosen individual; AUT = autonomous regulation; AMOT = amotivated regulation

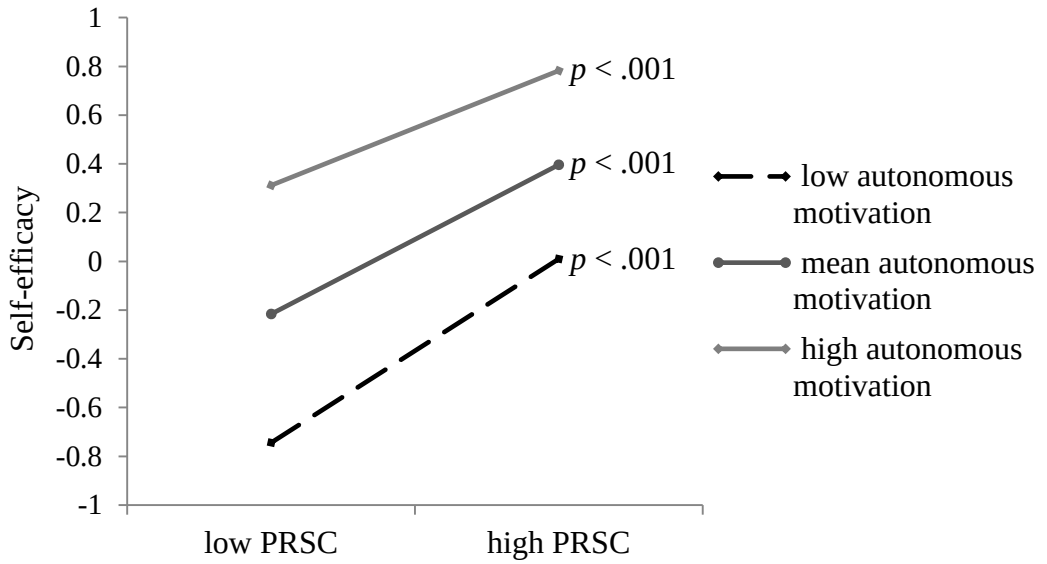

Figure 6.2 Regression slopes depicting interaction between PRSC and autonomy on self-efficacy. *Note.* PRSC = perceived relative standing in class.

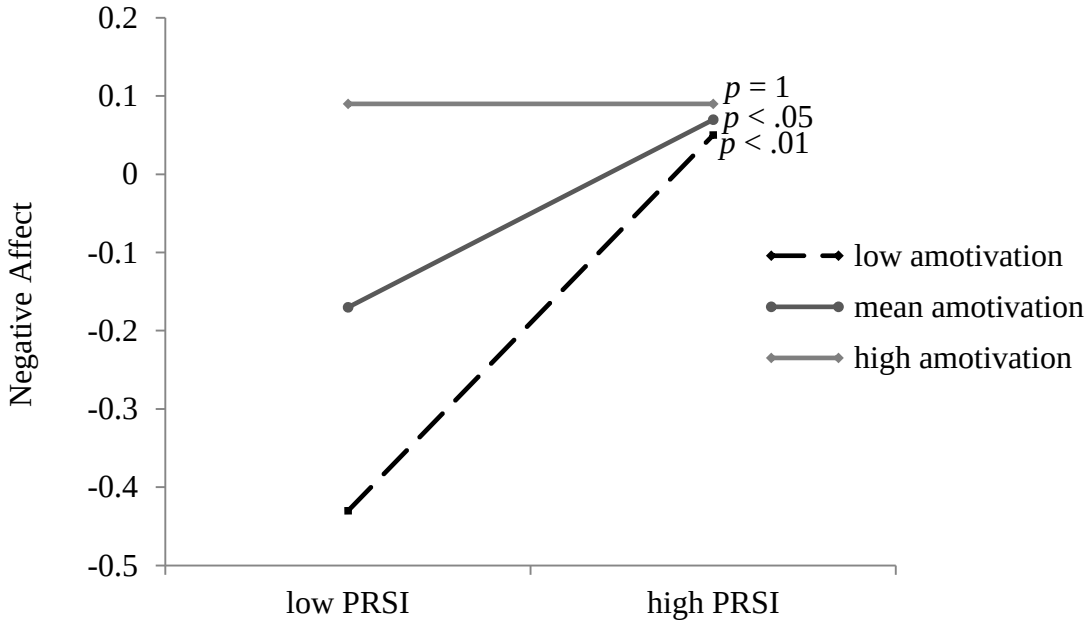

Figure 6.3 Regression slopes depicting interaction between PRSI and amotivation on negative affect. *Note.* PRSI = perceived ability compared to a chosen individual.

Moderating influence of the environment

Table 6.5 depicts the final models including the direct effects of the environmental variables and significant interactions. Main effects of climate and autonomy support are not discussed in detail although these can be seen in Table 6.5. In total, seven significant interactions were identified.

Table 6.5

Multi-level Model Analyses – Moderation Effects of Motivational Climate and Perceived Autonomy Support

	PSC	Self-efficacy	Positive Affect	Negative Affect
Model intercept	.05 (.05)	.03 (.04)	.02 (.05)	-.09 (.05)
PRSC	.39 (.05)*	.50 (.05)*	.47 (.05)*	-.24 (.05)*
PRSI	.09 (.05)	.09 (.04)*	.04 (.05)	.14 (.06)*
Task climate	.07 (.05)	.23 (.04)*	.32 (.05)*	.03 (.06)
Ego climate	-.19 (.05)*	.00 (.04)	.02 (.04)	.26 (.05)*
Autonomy support	.07 (.05)	-.04 (.04)	-.03 (.04)	-.08 (.05)
PRSC X PRSI	-	-	-	.16 (.04)*
PRSC X PAS	.17 (.05)*	.10 (.04)*	-	-
PRSI X EGO	.10 (.05)*	-	-	-.15 (.05)*
PRSI X PAS	-.13 (.05)*	-.09 (.04)*	-.09 (.04)*	-
Deviance	775.33	684.27	677.03	793.50

*$p < .05$

Note. PRSC = perceived relative standing in class; PRSI = perceived ability compared to a chosen individual; EGO = ego climate; PAS = perceived autonomy support.

Physical self-concept.

For physical self-concept there were three significant interactions which resulted in a significant change in deviance. Firstly, there was a positive interaction between PRSC and perceived autonomy support on physical self-concept (β = .17 [.05], $p < .05$), where physical self-concept was highest when PRSC and autonomy support were high. Simple slope analysis indicated that slopes were significantly different from zero at all conditional values of the moderator (See Figure 6.4) At low levels β = .22 (.07), $p < .01$, mean levels, β = .39 (.05), $p < .001$ and high values β = .56 (.07), $p < .001$. Secondly, there was significant positive interaction between PRSI and ego climate on physical self-concept (β = .10 [.05], $p < .05$). Simple slope analysis revealed that PRSI was only important in predicting physical self-concept when ego climate was high, β = .19 (.07), $p < .01$ (See Figure 6.5) and non-significant at mean β = .09 (.05), $p = .07$ and low β = -.01 (.07), $p = .93$ values of the moderator. Thirdly, there was a significant negative interaction between PRSI and perceived autonomy support on physical self-concept (β = -.13 [.05], $p < .05$). Simple slope analyses showed that the relationship between PRSI and physical self-concept was only significant

when perceived autonomy support was low, β = .22 (.07), $p < .001$ (See Figure 6.6) and non-significant at mean β = .09 (.05), $p = .07$ and high β = -.04 (.07), $p = .57$ values of the moderator.

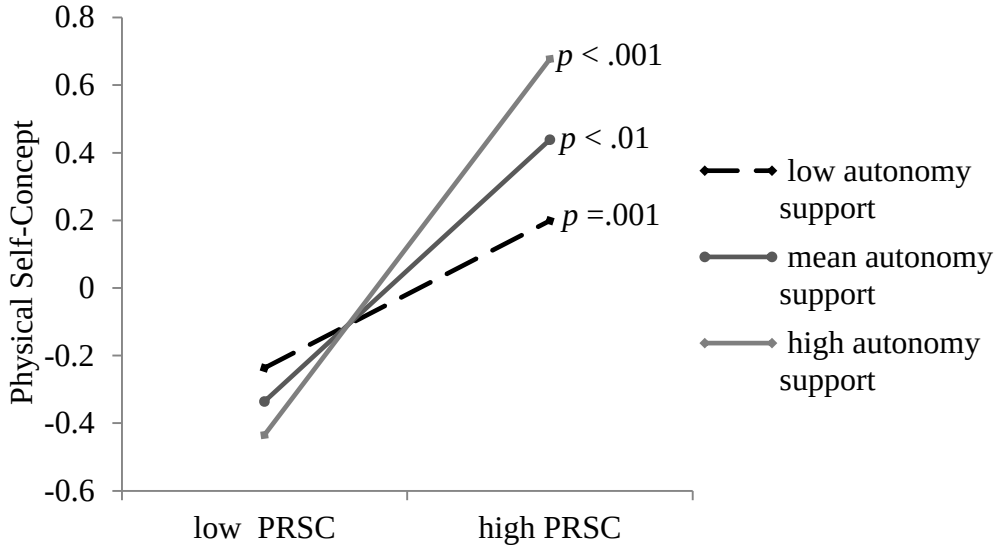

Figure 6.4 Regression slopes depicting interaction between PRSC and perceived autonomy support on physical self-concept. *Note.* PRSC = perceived ability compared to the class.

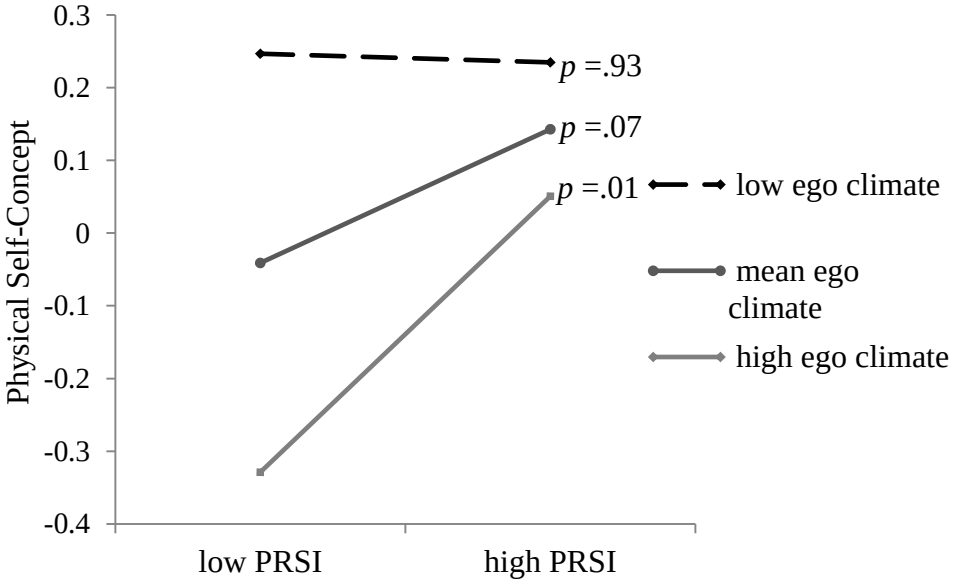

Figure 6.5 Regression slopes depicting interaction between PRSI and ego climate on physical self-concept. *Note.* PRSI = perceived ability compared to a chosen individual.

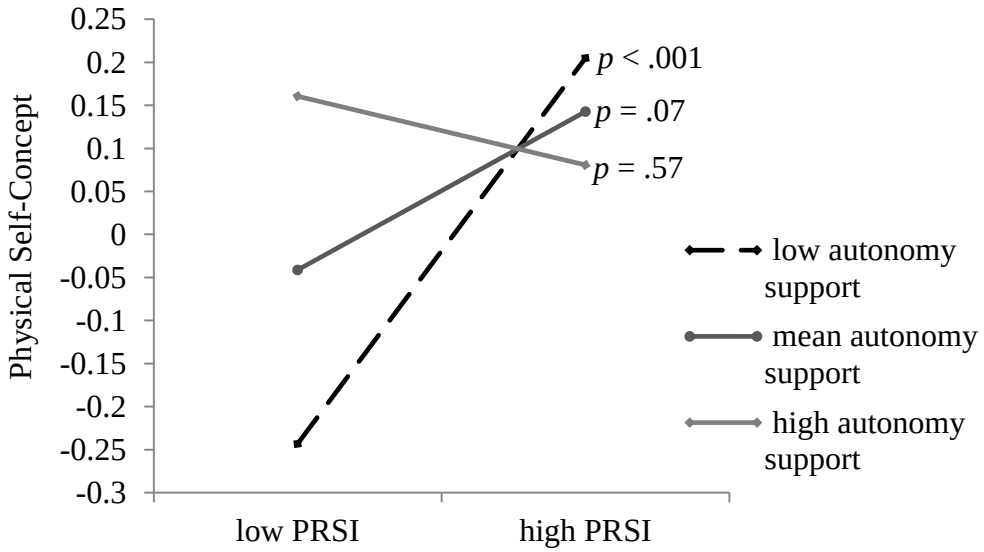

Figure 6.6 Regression slopes depicting interaction between PRSI and perceived autonomy support on physical self-concept. *Note.* PRSI = perceived ability compared to a chosen individual.

Self-efficacy.

For self-efficacy two significant interactions were identified where perceived autonomy support interacted with both PRSC and PRSI. The interaction between PRSC and autonomy support was, however, positive (β = .10 [.04], $p < .05$) whereas it was negative (β = -.09 [.04], $p < .05$) between PRSI and autonomy support. Simple slope analysis showed that the relationship between PRSC and self-efficacy was significant at all conditional values of the moderator, high β = .59 (.06), $p < .001$, mean β = .50 (.05), $p < .001$ and low β = .40 (.06), $p < .001$ values (See Figure 6.7), whereas for PRSI and autonomy support the simple slopes were only significant for low β = .18 (.06), $p < .01$ and mean β = .09 (.04), $p < .05$ conditional values of the moderator (see Figure 6.8) and not at high levels β = -.00 (.06), $p = .95$.

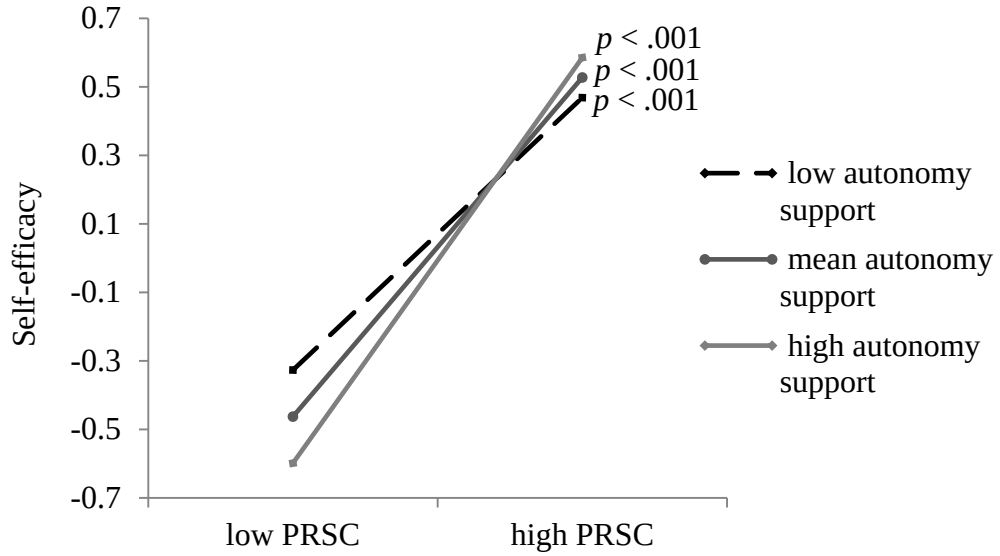

Figure 6.7 Regression slopes depicting interaction between PRSC and perceived autonomy support on self-efficacy. *Note.* PRSC = perceived relative standing in class.

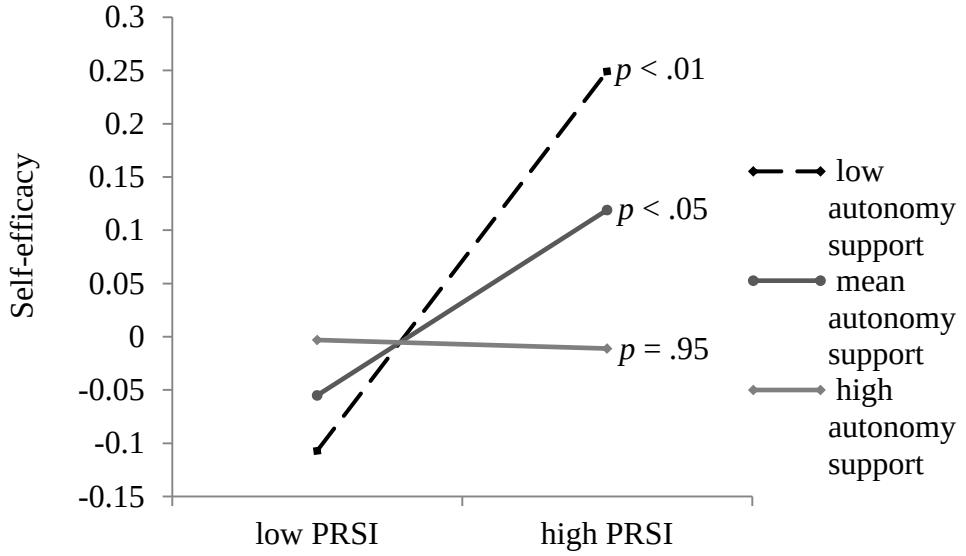

Figure 6.8 Regression slopes depicting interaction between PRSI and perceived autonomy support on self-efficacy. *Note*. PRSI = perceived ability compared to a chosen individual.

Positive affect.

Only one negative interaction for positive affect was identified between PRSI and perceived autonomy support β = -.09 (.04), $p < .05$. Simple slope analysis indicated that only at low levels β = .13 (.06), $p < .05$ of the moderator was a significant change in positive affect seen (See Figure 6.9). At mean β = .04 (.05), $p = .40$ and high β = -.05 (.06), $p = .41$ values of the moderator, the relationships were non-significant.

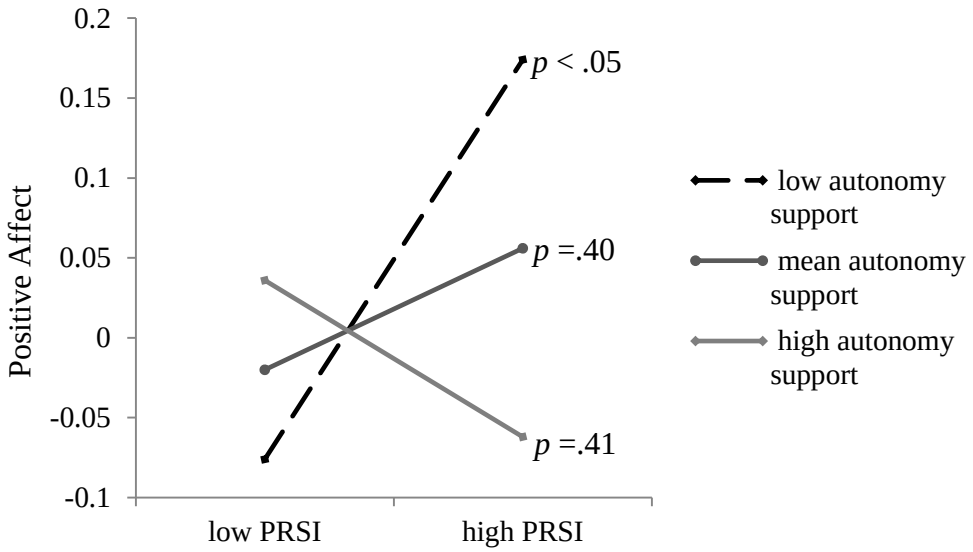

Figure 6.9 Regression slopes depicting interaction between PRSI and perceived autonomy support on positive affect. *Note.* PRSI = perceived ability compared to a chosen individual.

Negative affect.

Finally, one interaction was also identified between PRSI and ego climate (β = -.15 [.05], $p < .05$) for negative affect (See Figure 6.10). Simple slope analysis revealed that only at low β = .29 (.09), $p < .001$ and mean β = .14 (.06), $p < .05$ levels of the moderator was the relationship between PRSI and negative affect significant. At high levels of the moderator the relationship was non-significant β = -.01 (.06), $p = .85$.

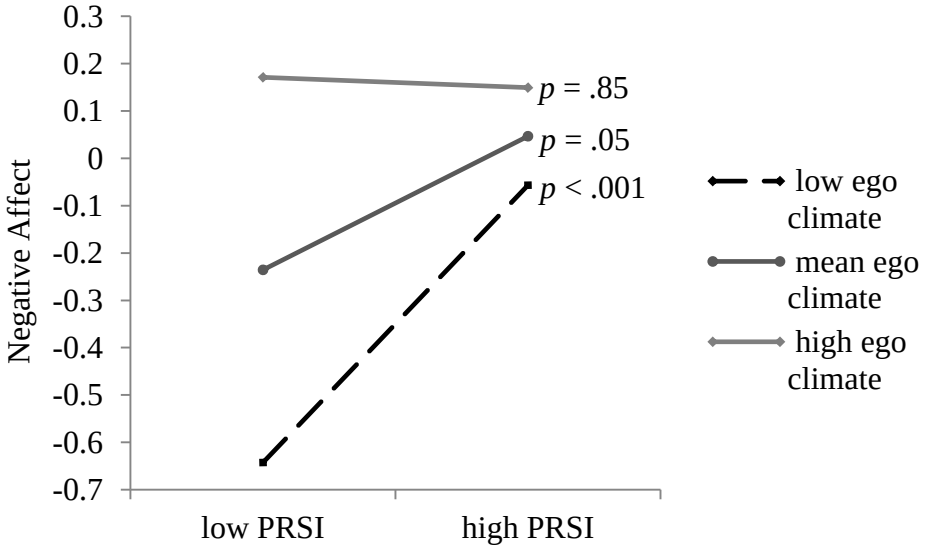

Figure 6.10 Regression slopes depicting interaction between PRSI and ego climate on negative affect. *Note.* PRSI = perceived ability compared to a chosen individual.

Discussion

The present study investigated several questions and provides new insight and knowledge into adolescent social comparison processes. The results from this study provide evidence for similar relationships to those detailed in Study 3, in addition to providing new evidence concerning motives for comparison and moderators of comparative evaluations. More specifically, these findings advance existing literature (Lubbers et al. 2009; Wood, 1989) by providing some of the first evidence that adolescents may be inclined to utilise a dominant motive for comparison and that this dominance is related to different outcomes.

Motives for Comparison and Frames of Reference

This study demonstrates that it is possible to group adolescents by a dominant motive. Furthermore, this study provides the first evidence for differences in mean scores for self-efficacy, physical self-concept and positive affect according to type of dominance. The results partially support the initial hypothesis by demonstrating that dominance in improvement as a motive for comparison will result in higher levels of physical self-concept than all other motives. In contrast to the initial hypothesis - that there would be no direct effects of self-enhancement dominance or no dominance - there was evidence for both their roles in predicting outcomes for the three dependent variables investigated. In the context of previous research, this study supports the use of multiple motives (Helgeson & Mickleson, 1995; Lubbers et al. 2009) by providing evidence that all three motives are used by adolescents. As there is no previous research which has used motive dominance to investigate the role of motives, the findings from this study pave the way for future research to begin to untangle the direct role of motives in determining outcomes in addition to providing a new measure for assessing adolescent motives for comparison. Further examination is also required concerning negative affect and if, and how, motives play a role in determining levels of negative affect as it was not possible to examine this question in the present study.

The results from the present study support the primary hypothesis of this study regarding comparative evaluations, the findings presented in the previous chapter and previous research (Locke, 2007), by further demonstrating that associations exist between comparative evaluations with the class and all four dependant variables and that the generalised other is more strongly related to the outcomes that an individual frame of reference. Additionally, the findings support previous research by demonstrating that comparisons with an individual may, in some instances, be beneficial to an individual (Buckingham & Alicke, 2002). In contrast to the second hypothesis made regarding comparative evaluations and in contrast to the results in Study 3, no interactions between

perceived ability in class and a chosen individual were found for positive affect or self-efficacy. A significant interaction was, however, identified for negative affect.

These differing results (between Studies 3 and 4) highlight the complexity of social comparison processes and demonstrate the need to further examine multiple frames of reference in order to determine if these results are replicable or specific to certain samples. More generally, these results support previous research (Barnes & Spray, 2013; Buckingham & Alicke, 2002; Chanal et al., 2005; Chanal & Sarrazin, 2007; Locke, 2007) by demonstrating not only the important influence of the generalised other, but also the moderating role that an individual may play in determining outcomes.

Individual and Environmental Moderators of Comparative Evaluations

This study examined a number of potential moderators of the comparison process. In examining these moderators, this study not only draws upon self-determination theory (Deci & Ryan, 2000), but also achievement goal theory (Ames, 1992). The results from the present study support some of the original hypotheses made, but also contradict a number of others. The following section details the findings in relation to the initial hypotheses and previous research.

Firstly, this study provided evidence for the moderating role of behavioural regulations. These results, however, differ from those in Study 3 and the hypotheses. Given that these two studies (Study 3 and the present one) are the first to examine behavioural regulations in conjunction with social comparison in this way, it is difficult to conclude if these results even though significant, arose by chance, or are the result of specific sample characteristics. The finding regarding perceived ability compared to a chosen individual (PRSI), amotivation and negative affect, does, however tie in with the findings in Study 1 regarding engagement where high perceived ability compared to an individual was seen to decrease engagement when ability compared to the class was also high. In the present study, negative affect was higher for high PRSI individuals than low PRSI individuals particularly when amotivation was low. These findings suggest that seeing oneself as better than a chosen individual serves to boost negative affect when amotivation is at mean or low levels. Secondly, in contrast to the hypotheses, task climate played no moderating role in predicting outcomes and ego climate moderated only two relationships. The results concerning task climate were surprising as it was expected that task climate might serve to buffer the negative impact of low perceived ability in class as this type of climate is proposed to serve a more self-referenced view of competence. The absence of any moderation seems to support the research of Régner et al. (2007) and Darnon et al. (2010) and suggests that task climates

(goals) may not be free from the influence of social comparison information. The results concerning ego climate are not as surprising given the nature of an ego climate which focuses on normative competence. Contrary to what one might expect, however, high ego climate and low perceived ability in class did not increase negative outcomes for individuals. Moderation by ego climate was only apparent in two specific instances when ego climate moderated the relationships between perceived ability compared to a chosen individual and physical self-concept and negative affect.

Finally, the results support previous research and hypotheses by suggesting that high autonomy support will lead to positive outcomes for individuals, however, the interactions with comparative evaluations provided some interesting and contradictory results. Taking perceived ability compared to an individual, it is noted that when ability is high, that low autonomy support can serve to boost levels of physical self-concept, self-efficacy and positive affect to the same level or higher than those in perceived high autonomy supporting classes. When perceived ability compared to the class is high, autonomy support serves to boost physical self-concept and self-efficacy, however, when perceived ability compared to the class is low, low perceived autonomy produces higher levels of both dependent variables than high autonomy support. These results demonstrate how social comparisons can interact with environmental level variables to predict different outcomes. The results suggesting that low perceived autonomy may be beneficial in some instances are contrary to the theoretical proposals of self-determination theory and certainly warrant further attention before any firm conclusions are drawn from the data.

Implications for Practice

This research provides a number of practical implications for individuals working with adolescents who are interested in understanding both adolescent responses to comparison and the implications that this might have for teachers and individuals who work with young people. One implication is that class based comparisons are important in determining outcomes even when environmental moderators are accounted for. Furthermore, this study suggests that providing an educational context with a low ego climate will result in positive outcomes for adolescents through both its direct and moderating effects on physical self-concept and positive affect. Although task climate did not serve to produce any positive or negative moderating effects, the direct positive effect on both positive affect and self-efficacy attests again to the benefit for students of teachers providing a high task orientated climate (Ntoumanis & Biddle, 1999; Weigand, Carr, Petherick & Taylor, 2001). No implications for perceived autonomy support are given at the present time because of the

conflicting impact of high autonomy support dependent upon the frame of reference. For example, high autonomy in conjunction with low perceived ability in class resulted in lowest levels of physical self-concept.

Another implication involves motives, specifically self-improvement. The findings from this study suggest that teachers can encourage comparison motived by the desire to improve without causing any negative effects. At present this motive appears to provide benefits for individuals who are both high and low in ability. Teachers could, therefore, demonstrate to students how to compare in this way or encourage comparison for that reason instead of suggesting to students that they should compare for reasons of evaluation or enhancement. The final implication from this study concerns teacher awareness. The results highlight the powerful influence of 'the class' and comparisons with this entity. Teachers need to be made aware of the influence of this comparison standard and understand that they should be mindful if and when they choose to use this as a comparison standard. Practices such as asking the class to line up in ability order should be avoided and for tasks where students are paired, a stress on comparing for reasons of improvement should be made.

Limitations and Future Directions

This study has several limitations which must be acknowledged. The first was that the study design was cross-sectional and, therefore, causality cannot be assumed. In addition it must be accepted that the relationships will be reciprocal and could, therefore, be interpreted in the opposite direction. It is proposed, however, that the relationships are in the direction stated particularly given previous longitudinal research (Chanal et al., 2005) which has demonstrated the direction of the relationship between perceived ability in class and physical self-concept over time. Given that this is only the second examination of comparative evaluations and the self-efficacy and positive and negative affect, there is a need for future research to investigate these relationships longitudinally.

A further limitation concerns the items used to assess external regulation and the implications that their weak reliability had on the analysis for this study. Internal reliability for these items was less than .50 which meant that an in-depth analysis of each behavioural regulation individually was, therefore, not possible. This leaves a lack of clarity surrounding the individual roles of behavioural regulations (except for amotivation) in predicting the dependant variables investigated in this study. The reliability for introjected regulation was also slightly lower than .70 which suggests that there may be issues with the items which make up these regulations. These reliability issues need to be addressed in future research so that a more comprehensive analysis of how comparative evaluations and behavioural

regulations interact to influence various outcomes can be completed. Furthermore, these discrepancies with reliability could be responsible for the different results seen between the present study and Study 3 and should be addressed in future research.

Additionally, the present study used a number of adapted items for different scales. Although these scales showed good internal reliability, items need to be developed which are valid for use within physical education. Adapting items from sport can work as demonstrated in this study, but items specifically for physical education are required, particularly given the importance of physical education in predicting long term physical activity outcomes (Coakley & White, 1992). Furthermore, no objective measure of ability was used in the analysis. This may have led to inflated relationships due to shared method variance and future research should look to include an objective measure of ability as well as perceived ability scores (e.g. Chanal & Sarrazin, 2007). A further limitation concerns the inability to analyse motives in relation to perceived ability compared to a chosen individual and negative affect. Future research using larger sample sizes and equal groups is needed in order that these relationships can be reliably examined and results then used to inform practice.

In addition to the need for future research which covers the limitations within this study, there are other avenues which could be pursued for both the benefit of theory and practice. The influence of perceived relative standing in class seems to be particularly strong and determining which specific tasks or activities (such as practising serves or swimming) increase or decrease class wide comparisons may provide useful insight into how teachers can negate some of the negative impacts of comparisons with the class. Furthermore, this study has begun to draw upon other theories to help extend knowledge concerning social comparison processes. These results demonstrate the benefit and need for future research which combines different theories in the pursuit of understanding and insight into social comparison processes. In the present study for example, it has been demonstrated that motivational climate and perceived autonomy support - two well renowned environmental variables - have different impacts, but these influences are not necessarily what one would have predicted.

This study has shown the differential role that both individual and environmental moderators can play in determining outcomes. Research in the future is needed to: replicate these results; to test other hypotheses from Festinger's (1954) theory; to examine other individual and environmental moderators of social comparison processes, as these may lead to a more in-depth and comprehensive understanding of social comparison processes; and to investigate whether it is possible to manipulate motives as this would help researchers

understand whether motive dominance can be changed/influenced and provide insight for teachers as to how they can help change motives to achieve adaptive outcomes.

In conclusion, the present study provides new insight into adolescent comparisons, their motives for comparison, and both individual and environmental moderators of social comparisons. More specifically, the results highlight that the direct effects of comparative evaluations with the class are able to account for variance in the dependent variables even when environmental variables are entered into the regression analyses at the same time. Furthermore, this study provides a new measure for assessing motives for comparison, provides further support for the multi-item scale assessing perceived relative standing in class developed in Study 3 and replicates and extends the research from Study 3. Finally, this study provides research evidence from and practical implications for a naturalistic setting and an important educational context which all adolescents in England will experience whilst at school.

Chapter VII

General Discussion

There is a pressing need to determine what factors are associated with the amount of physical activity that young people engage in (Department of Health, 2011). Physical education provides a key access point for researchers wishing to understand and influence the level of physical activity engaged in by young people. Whilst there is a growing body of research examining how individual motivation may influence one's level of engagement in physical activity, there remains a lack of knowledge concerning the influential role of significant others in predicting similar outcomes. Grounded in Festinger's (1954) theory of social comparison processes, this thesis aims to address these limitations by examining three aspects of social comparison relating to young people in physical education: motives for comparison, the frames of reference utilised for comparison and various outcomes associated with comparing with different frames of reference. To achieve this aim, four research studies have been completed which utilised both qualitative and quantitative methods.

Although there are a number of studies which have investigated social comparison within the school environment, most of these have examined academic subjects rather than physical education. Furthermore, after completing the reviews of literature (detailed in Chapters IIA and IIB) it was clear that a comprehensive exploration of social comparison processes in physical education would provide an informative starting point for research in this area. Study 1 was designed to provide this examination of social comparison in physical education and resulted in the formulation of several motives for comparison, targets (frames of reference) used for comparison and outcomes of comparison from an adolescent perspective. The findings from Study 1 were subsequently used to formulate the research questions posed in the following three studies which examined the strength of specific relationships between comparative evaluations, comparison motives and six dependent variables. Additionally, Study 1 highlighted the role of the teacher in influencing social comparison processes, which led to the inclusion of motivational climate and perceived autonomy support in later studies.

The following section provides a brief overview of the main findings and is succeeded by a detailed discussion of the main findings considered within the context of previous research. After the main discussion, the chapter focuses on the theoretical, empirical and practical implications of the research before concentrating on the limitations and future directions. The chapter thesis is then brought to a close with a final section detailing the conclusions drawn from the research herein.

Summary of the Main Findings

A systematic review and four empirical studies have been completed to create this thesis. In total, 1640 individual participants from seven schools took part. Participating schools were from a variety of locations within England (Hertfordshire, Hampshire, Leicestershire, Derbyshire, and Wiltshire) and all were considered to be of above average socio-economic status (measured using number of pupils eligible for free school meals).

Study 1 used a qualitative method to provide a detailed examination of adolescent experiences of social comparison in physical education. The findings from this study demonstrate that adolescents engage in comparisons for multiple reasons, that they utilise many frames of reference both within and outside of physical education for comparison, and that there are many consequences which may result from comparisons with others. Study 2 has subsequently focused on comparisons with the class and a chosen individual, and indicates that the class is more influential in determining outcomes than a chosen individual. More specifically, perception of ability in class is positively related to physical self-concept and engagement and negatively related to disaffection. Furthermore, an interaction between evaluation with the class and a chosen individual was identified for engagement. This interaction demonstrates that engagement is lowest when an individual perceives their ability to be low both within the class and compared to a chosen individual. Within Study 2, the role of motives was also examined - however no relationships between these, frames of reference or outcomes were identified.

The findings of Study 3, which focused on comparative evaluations with the class and an individual have replicated those of Study 2 concerning physical self-concept and further highlight the influential role of comparisons with the class. Class comparison is significantly associated with the other three dependent variables under examination (self-efficacy; positive affect; negative affect). Comparisons with an individual revealed no direct relationships with any of the dependent variables; however, three interactions with perceived ability in class have been identified. These interactions show that positive affect and self-efficacy are highest when ability in class is high and ability compared to an individual is low. Negative affect, however, is highest when both perceived ability in class and compared to a chosen individual are low. Study 3 has also examined the direct and moderating role of motives and the moderating role of behavioural regulations in predicting outcomes. Analyses demonstrate that self-evaluation and self-improvement positively predict both self-efficacy and positive affect, whilst self-improvement negatively predicts negative affect. Furthermore, one interaction between perceived ability compared to an individual and self-evaluation has been identified

for negative affect, indicating that lowest levels of negative affect result from high ability compared to an individual and a high self-evaluation motive. Finally, Study 3 has investigated the moderating influence of behavioural regulations. The results indicate one interaction where negative affect is highest when perceived ability in class is low and controlled regulation is high.

Study 4 has replicated Study 3 by examining the same variables, in addition to three environmental moderators. The results indicate further support for the role of class comparisons in predicting key consequences in physical education. In contrast to Study 3, no interaction between class and individual evaluations has been found for either positive affect or self-efficacy, however this interaction remains significant for negative affect. Study 4 has also examined motive dominance finding no evidence for moderation of comparative evaluations, but several main effects for pupils' physical self-concept, positive affect and self-efficacy. These results suggest that motive dominance is influential regardless of perceived ability in class. More specifically, self-improvement leads to the most adaptive outcomes. Study 4 has further examined behavioural regulations as moderators of comparative evaluations. The results indicate two interactions, but these are different to those seen in Study 3. In Study 4, the relationship between ability in class and self-efficacy is moderated by autonomous regulation where high perceived ability in class and high autonomous regulation leads to highest levels of self-efficacy. Additionally, the relationship between negative affect and ability compared to an individual is moderated by amotivation, where negative affect is lowest when both ability compared to an individual and amotivation are low. Finally, no moderating role of task climate has been seen, but ego climate moderates two relationships between ability compared to an individual and physical self-concept and negative affect. Although not directly related to the outcomes, perceived autonomy support also moderates several associations.

Motives for Comparison

As the systematic review has highlighted, social comparison research has paid little attention to the motives which drive young people to compare themselves with others in physical education. The studies within this thesis indicate that adolescents are driven to compare with targets for different reasons, similar to those seen in adult samples (Helgeson & Mickleson, 1995; Woods, 1989; Woods et al., 2000). The qualitative study detailed in Chapter III provides evidence that in addition to Festinger's (1954) self-evaluation motive for comparison, young people also compare for reasons of self-improvement and self-enhancement. Additionally, the findings suggest that in certain circumstances adolescents

compare with others for reasons unknown to them, as well as actively avoiding comparison with others in certain instances. The possibility of friendship as a motive for comparison was has also been considered in Study 1 (Lubbers et al., 2009) - however, no firm conclusions have been drawn concerning this proposition because friendship was very often cited alongside similarity as a reason for comparison.

The results presented in Studies 2, 3 and 4 begin to build the case for studying motives for comparison in adolescent samples and provide evidence to support the findings of Study 1. Within these three studies, both the direct and moderating roles of self-evaluation, improvement and enhancement have been examined with the results as a collective pointing towards their importance in directly predicting outcomes rather than indirectly through moderation of comparative evaluations.

The findings from Study 1 indicate that there might be evidence for interrelationships (Saldaña, 2011) between motives and outcomes - however, the findings are inconclusive and one of the aims of the following three studies has been to examine the direct role of motives in predicting outcomes of comparison. The findings of Study 2 support those of Study 1 which suggest that adolescents compare for reasons of evaluation, enhancement and improvement - however, no direct effects of motives on outcomes have been found. These results are contradicted by Studies 3 and 4 which both provide evidence for the direct role of motives in predicting different outcomes. The reason for the difference in findings is likely to be due to the measure used in Study 2 (see p. 191 for a discussion on measurement of motives) which has resulted in the development of the different measures for assessing motives in Studies 3 and 4. The results detailed in this thesis demonstrate, as a collective, that being driven to compare by a self-improvement motive is associated with the most adaptive outcomes for young people (e.g. higher physical self-concept, self-efficacy and positive affect and lower negative affect).

The role of self-evaluation in predicting outcomes might be more complex than that of self-improvement and firm conclusions regarding this motive are not, therefore, provided. This is due to the negative interaction detailed in Study 3, where high levels of evaluation moderate the relationship between ability compared to an individual and negative affect. Furthermore, due to the groupings used in Study 4 (resulting in low numbers per group) and the fact that negative affect could not be transformed for ANOVA analysis, there is no confirmation of the existence of this interaction detailed in Study 4. Whether evaluation does moderate the relationship between ability compared to an individual and negative affect, or if the result is characteristic only of the sample used in Study 3 is unknown and requires further

investigation and replication in future research. Considering only the main effects, however, it appears that self-evaluation may have some positive benefits for individuals who are driven to compare by this motive.

Study 4 has provided the opportunity to examine moderation and motive dominance. The findings demonstrate that no dominance (where multiple motives scored similarly) produces similar levels of self-efficacy and positive affect to self-improvement. Although there were several combinations of individuals who were assigned to this group, the suggestion is that comparing for all three reasons or at least two an equal amount of the time, may also lead to adaptive outcomes. This Study is, however, the first of its kind and future research is needed before firm conclusions concerning motive and motive dominance can be made.

In general the results attest to the direct influence of motives, but leave the question of their role in moderation of comparative evaluations unanswered. The findings demonstrate that both comparative evaluations and motives each explain variance in the dependent variables independently of one another. This highlights the need to continue to examine both the direct and indirect effects of adolescent motives for comparison.

In summary, the investigations of adolescent motives within this thesis are the first of their kind. The results suggest that adolescents engage in comparisons for multiple reasons in the same way that adults do. Although this thesis focuses on three motives, Study 1 has identified that there is at least one other reason why adolescents compared with others. The studies as a collective extend previous research by providing new insight into the motives for comparison used by adolescents in physical education. Additionally the results indicate how these motives may be directly related to various outcomes. Finally, the studies suggest that self-improvement is the most adaptive motive for comparison in physical education, but that self-evaluation may also have several benefits.

Frames of Reference

The following section provides an overview that is specific to frames of reference. The relationships between frames of reference and outcomes are examined in more detail after an overview of the dependent variables is given in the sub-section directly following this one.

Having established through the reviews of literature (Chapter IIA & IIB) that there are several frames of reference which might be utilised by adolescents in physical education, but remain hitherto unexamined (e.g. individuals outside of the class), the qualitative study was designed to provide an opportunity to explore existing frames of reference *and* allow for the

consideration of other targets which might be used and which had not previously been identified or defined. The findings from Study 1 demonstrate that adolescents are active comparers who are able to seek out targets which might provide valuable information for their own development (e.g. the best in the class). The results also indicate that there are many targets with which adolescents compare including those previously examined in research within physical education (e.g. Chanal et al., 2005; Chanal & Sarrazin, 2007). Furthermore, Study 1 highlights that in order for a frame of reference to be used (active) the target must be present in the lesson. Additionally evidence for both forced and chosen comparisons has been found, where forced comparisons are those deemed unavoidable by individuals and chosen comparisons, those initiated by the comparer. The two frames of reference which were most commonly discussed by participants amongst an array of other targets were the class and an individual, who was often described as a friend. These two frames of reference mirror those already previously investigated in physical education - however, given the frequency of comparison with the class and number of different individuals discussed by participants, these two frames were chosen for investigation in the following three studies.

The quantitative examinations which followed have assessed comparisons with the class and a chosen individual. These studies as a group provide evidence in support of previous research for the influential role of the generalised other in determining outcomes (Chanal & Sarrazin, 2007; Locke, 2007). Additionally, the results support previous research (Chanal et al., 2005: Chanal & Sarrazin, 2007; Marsh & Hau, 2003) by providing evidence for the use of, and importance of, the class as a frame of reference. Furthermore, the findings from Study 4 indicate the strength of influence of ability compared to the class in determining outcomes, where it remains a significant predictor of outcomes even when other influential concepts - motivational climate, behavioural regulations and perceived autonomy support - are included. The inclusion of a chosen individual as a comparison target provides evidence that ability comparisons with this target, although less influential through main effects than the class, can still influence specific outcomes both directly and indirectly through moderation of ability compared to the class. In particular the results from this thesis demonstrate that when ability in class is high, considering oneself to be less able than a specific individual in the class may be beneficial. This finding may highlight why in Study 1 there is evidence which suggests that adolescents who believe they are highly able within the class may disengage from the lesson.

The results from all the studies considered together highlight that there are both positive and negative outcomes of comparing with different frames of reference. The generalised other (the class) appears to exert the strongest influence on dependent variables, supporting previous research. In certain cases comparison with an individual may serve to moderate this relationship. These results do, however, include only two frames of reference. Research investigating many individuals, for example similar versus more able, may help to clarify which frames of reference are most influential. This in turn should help both researchers and teachers to understand if and how it is possible to intervene in order to negate some of the negative influence of low ability in class which has been demonstrated repeatedly both within this thesis and in previous research.

Consequences of Social Comparison

The systematic review has highlighted that there are a number of dependent variables which have previously been associated with comparative evaluations in physical education. The dependent variable which has received the most attention is physical self-concept. Although there have been a number of dependent variables associated with social comparison in physical education, the qualitative study has provided the opportunity to explore outcomes in a way not previously attempted. In so doing, many outcomes of comparison have been identified.

The qualitative study (Chapter III) has led to the formation of many different themes, one of which was based on the interrelationship between outcome and direction of comparison. These themes have been broadly assigned to three groups, affective, cognitive and behavioural outcomes and are in some instances linked to frames of reference, direction and motives. The aim of the research following Study 1 has been therefore, to identify if specific relationships between evaluations with two frames of reference (the class and a chosen individual) can be linked with direction and different outcomes.

Given the need to understand what factors influence young peoples' experiences in physical education and subsequently their physical activity participation, identifying both the positive and negative consequences of comparison is clearly an important task for researchers and forms a key part of this thesis. Overall, this thesis has provided the first evidence for associations between comparative evaluations and self-efficacy, engagement, disaffection and positive and negative affect in physical education, in addition to supporting previous research regarding physical self-concept. The following section discusses the consequences examined within this thesis in conjunction with the frame of reference and direction of comparison.

Frame of reference and associated consequence.

Having identified the need to examine outcomes in relation to a particular direction and target in Study 1, the following studies have investigated both the independent and interaction effects of comparison with the class and with a chosen individual on a total of six dependent variables. As discussed in each chapter, the results provide support for previous research by demonstrating that comparative evaluations with the class are related to physical self-concept and further extend existing knowledge, by providing evidence for the relationship between comparative evaluations and other important educational outcomes. The findings concerning outcomes within this thesis have resulted in the identification of various implications for both teachers and researchers interested in understanding both social comparison in physical education and practical outcomes for young people. These implications are provided later in this chapter in the contribution to knowledge section, which follows the upcoming discussion of each dependent variable. Physical self-concept is considered first, with behavioural engagement, behavioural disaffection, self-efficacy and positive and negative affect following.

Physical self-concept has been examined in each study within this thesis with the results providing fairly consistent evidence across the studies. The findings from the qualitative study have been less conclusive when trying to identify interrelationships between themes, but the following quantitative studies consistently demonstrate that the class is *key* in determining levels of physical self-concept. This finding, concerning the role of comparisons with the class, supports previous research in physical education (Chanal et al., 2005; Chanal & Sarrazin, 2007) and demonstrates that ability compared to the class is related to physical self-concept in English samples. More specifically, that low ability in class is related to lowest levels of physical self-concept and high ability in class to highest levels of physical self-concept. Although the quantitative studies in this thesis are cross-sectional, it was predicted that perceived ability in class would predict physical self-concept. This was due to the longitudinal work by researchers such as Chanal & Sarrazin (2007) which has found evidence for the direction of this relationship with the effects enduring over time. Although support for the role of the class in predicting physical self-concept has been found, there is no evidence to suggest that comparison with an individual has any influence on physical self-concept either directly or indirectly (through moderation). This suggests that for the frames of reference considered in this thesis, only the class significantly impacts upon levels of reported physical self-concept. This finding seems logical given the nature of physical self-concept, which is seen as a hierarchical construct which may be widely influenced by different factors.

The findings from this thesis do, however, challenge the propositions of Skaalvik and Skaalvik (2002) that individuals within the class might serve as frames of reference which inform the development of self-concept. In summary, these findings highlight the importance of the class in predicting physical self-concept and attest to the need for further examination of multiple frames of reference in relation to this outcome.

Having identified in Study 1 that engagement and disaffection in class are the outcomes of both upward and downward comparisons, these variables were included in Study 2. Specifically the study has focused on behavioural engagement and disaffection because the data in Study 1 tended to relate more to behavioural reactions than emotional engagement/disaffection. Understanding the precursors of engagement and disaffection within the lesson is important in helping teachers to boost engagement and also for helping adolescents who may disengage as a reaction to poor ability rather than a proactive desire to disengage at school. The results for engagement demonstrate that both class and individual comparisons are direct predictors, but that the influence of the class is more pronounced than that of the individual. Furthermore, the interaction shows the importance of studying multiple frames of reference at once, where the ability compared to an individual is found to moderate the relationship between ability in class and engagement. Additionally the interaction suggests that when both high ability in class and high ability compared to a chosen individual are perceived, that engagement may begin to decline. This supports the findings in Study 1 regarding levels of aspiration and young people needing an upward target to aspire to in order to keep them engaged in the lesson.

Disaffection has also investigated in Study 2 with the findings revealing that the class is the primary determinant of disaffection, with no direct role identified for ability compared to an individual. This highlights that although researchers may have considered behavioural disaffection and engagement as opposites in the past, in the future these variables should be treated as separate entities with their own set of predictors. These findings support previous research (Khoo & Oakes, 2003) which has suggested that social comparison can lead to misbehaviour in class. Additionally, these findings extend previous research by providing evidence for a relationship between comparisons with the class and disaffection which has not previously been investigated in this way. Furthermore, these findings also agree with the results detailed in Study 1, which suggest that low ability is interrelated with disengagement in class.

Study 3 has seen the removal of engagement and disaffection as dependent variables and instead, the addition of self-efficacy, positive affect and negative affect. Self-efficacy has

been examined in Studies 3 and 4 with the findings concerning the relationship between comparative evaluation with the class and self-efficacy remaining relatively consistent across the two studies. Furthermore, no direct effect of ability compared to an individual has been found in either study. These results support those by Chase (1998), which suggests that social comparisons made in sporting contexts are a source of self-efficacy information. The moderation of the relationships between ability in class and self-efficacy by ability compared to an individual has only been identified in Study 3. This discrepancy between findings in Studies 3 and 4 attests to the need for future research before any firm conclusions can be drawn. There are several reasons that could account for these differences such as chance or specific sample characteristics. Until further research is completed, however, these reasons remain speculative. In the past (Marsh et al., 1991), it has been suggested that self-efficacy is less likely to be affected by comparative evaluations than physical self-concept - however, the results within this thesis indicate that both are influenced by comparisons, although the relationships for both dependent variables are not identical. This adds weight to the argument that these two variables are assessing different aspects of the adolescents' development and should be considered individually. Both, therefore, warrant attention in future research.

The results contained within this thesis concerning positive and negative affect do not completely support nor contradict previous research, mainly because affect has not been studied in relation to social comparison in this way before (Buunk et al., 2005). The results do, however, generally show that negative emotions may be experienced after an upward comparison and that positive emotions may be experienced after a downward comparison. Furthermore, the results within this thesis attest to the importance of the generalised other rather than an individual in predicting affect.

The findings regarding positive affect are very similar to those for self-efficacy, where consistent results for the direct association between ability in class and positive affect are seen in both studies and no direct relationships for ability compared to an individual noted. Furthermore, similarly to self-efficacy, an interaction for positive affect is seen between ability in class and compared to an individual in Study 3, but not in Study 4. These results could again be due to chance or sample characteristics, however, as mentioned in conjunction with self-efficacy future research assessing these relationships is needed before any firm conclusions can be drawn. The interactions identified for self-efficacy and positive affect are quite similar to that found for engagement (in Study 2). These findings as a group seem to suggest that being able within the class, but less able than an individual may be beneficial for a student. It appears that the lack of inspiration noted in the qualitative study

(Chapter III) when an individual believes they are more able than all others in the class is born out in the results of the quantitative studies.

Negative affect is the last dependent variable examined in Studies 3 and 4. It has been included because of the findings in Study 1 and those detailed in previous research (e.g. Buunk et al., 2005). The results consistently demonstrate a significant negative relationship between ability in class and negative affect where low ability in class is associated with highest levels of negative affect. Furthermore, ability compared to a chosen individual moderates the effect of ability in class in both Studies 3 and 4 suggesting that this relationship may be replicable in other samples and more generalisable than those for self-efficacy and positive affect. Additionally, a direct relationship between ability compared to an individual and negative affect is also found in Study 4 which has not been identified in Study 3. Again it is clear that future research investigating the role of individual comparisons is needed in order to gain a better understanding of these effects.

In summary, comparative evaluations are related to the dependent variables in different ways. This thesis has provides evidence that comparative evaluations with the class are particularly influential in determining physical self-concept, engagement, disaffection, self-efficacy, positive affect and negative affect in physical education and that comparisons with an individual can play a role in determining some of these outcomes, both directly and through moderation. Although causality cannot be claimed at this stage, the findings are presented in the direction hypothesised, based on previous research and the results of the qualitative study; however, future longitudinal research will determine whether these hypotheses are in fact in the correct direction.

Moderators of Comparative Evaluations

Previous research in physical education has examined the roles of behavioural regulations, perceived autonomy support and motivational climate in predicting various outcomes. Both behavioural regulations and perceived autonomy support are grounded in self-determination theory (Deci & Ryan, 2000), a theory widely tested and researched in physical education. The research completed within this thesis has aimed to examine whether behavioural regulations (Studies 3 & 4) and perceived autonomy support (Study 4) can moderate the relationships between comparative evaluations and the four dependent variables investigated in these studies. The results indicate that there are similar direct effects of behavioural regulations across the two studies, but no consistent relationships concerning interactions. The findings from this thesis suggest that reducing controlled regulation will serve to provide direct positive benefits in terms of physical self-concept and negative affect

and indirectly decrease negative affect through moderation - however, these results are the first of their kind and need replication. Furthermore, the results in Studies 3 and 4 highlight that investigating both comparative evaluations and behavioural regulations at the same time can provide insight into the influence that both can have independently of one another, as well as providing knowledge concerning possible interactions.

Having investigated an individual level moderator in Study 3 and knowing the theoretical basis for the regulations and their relationships with perceived autonomy support, this environmental level variable has been included in Study 4. The results demonstrate that although there were no direct effects of perceived autonomy support on any of the dependent variables, its importance lies in moderation where it is involved in five interactions. These interactions indicate that there may be both positive and negative effects on outcomes which are dependent upon the frames of reference in question. The interactions identified for physical self-concept and self-efficacy between ability in class and perceived autonomy support suggest that high autonomy support is beneficial with the most adaptive outcomes seen when both ability in class and autonomy support are high. In contrast, the plotting of the interactions highlight that when ability in class is low, high perceived autonomy support results in the least adaptive outcomes with lowest levels of physical self-concept and self-efficacy resulting from this combination of predictors. The other three interactions involve ability compared to a chosen individual and perceived autonomy support where similar relationships for physical self-concept, positive affect and self-efficacy are seen. In all three cases, a significant increase in the dependent variables is seen when autonomy support is low (and at mean levels for self-efficacy), whereas the relationships at all other conditional values are non-significant. These interactions suggest that the combination of low autonomy support and high ability in class may lead to adaptive outcomes. Further research is needed however, to investigate this proposition particularly given that no main effects for either of the independent variables have been seen in Study 4.

In addition to self-determination theory (Deci & Ryan, 2000), motivational climate from achievement goal theory has been included as a moderator of comparative evaluations in Study 4. Given the comparative nature of an ego climate and questions concerning whether social comparisons are active during task climate or in the pursuit of task goals, it has been hypothesised that task and ego climates will moderate the relationships between comparative evaluations and the dependent variables. No moderation has been found, however, for task climate for any of the dependent variables and only two interactions have been identified for ego climate. Although not expected, the findings regarding task climate suggest that, for the

dependent variables under investigation, the relationships between comparative evaluations and these outcomes are not moderated by task climate. That is not to conclude that task climate will/may never moderate comparative evaluations with other frames of reference or other dependent variables. In contrast to task climate, ego climate serves to moderate the relationship between ability compared to an individual and both physical self-concept and negative affect. The least adaptive outcomes for both dependent variables are seen when ego climate is high. Specifically for physical self-concept, high ego climate moderates the relationship between ability compared to an individual and physical self-concept. The results for negative affect interestingly suggest that when ability compared to an individual is high, negative affect was higher than when comparative ability is low. Furthermore, negative affect decreased to lowest levels when both ego climate and perceived ability are low. The other interaction involving ego climate demonstrates that when ability compared to a chosen individual is low *and* ego climate is high, that this serves to significantly reduce physical self-concept. These results demonstrate that the relationships between comparative evaluations and outcomes are not independent of other factors. Additionally, the interactions noted in Study 4 for physical self-concept are the first that have been identified for this dependent variable within this thesis. This suggests that it is these higher level environmental variables which may be able to influence physical self-concept directly, rather than individual level variables such as behavioural regulations. These findings highlight the need to investigate a variety of important educational outcomes so interventions that are designed to boost one positive outcome do not result in unforeseen negative consequences because the repercussions for other dependent variables have not been investigated or considered.

The findings regarding ego climate and perceived autonomy support add further weight to the argument made earlier in this thesis for investigating both environmental and individual level variables simultaneously when attempting to understand social comparison processes. These findings also demonstrate that ego and task climates are not direct opposites of one another in their prediction of dependent variables. Furthermore, all environmental variables are entered simultaneously into the models demonstrating that even when account has been taken of the direct effects of task and ego climate and perceived autonomy support, comparative evaluations with the class are still able to account for variance in the dependent variables.

The results within this thesis also indicate that in some instances it may be beneficial to promote the use of social comparison with others if these comparisons can serve to boost engagement in class for example. In contrast to achievement goal theory and task climates,

the findings from this thesis suggest that promoting environments without comparison with others may not actually be the most productive and motivating environment for individuals, but that in certain cases comparison are essential for providing aspirational targets for young people to try and achieve. Future research which further investigates both social comparisons and achievement goal theory is therefore needed in order that researchers can determine both the positive and negative impact of comparisons and whether task climate which focuses on competence derived from self-development rather than comparison with others is actually the most preferable environment to promote positive development or if a self-improvement focu with specific comparisons factored in is actually more preferable.

In summary, consequences of comparisons are numerous, some of which have been captured and documented in Study 1, but how these dependent variables are influenced may depend upon the frame of reference in question, motives for comparison and both individual and environmental moderators. This thesis demonstrates that comparisons with the class (generalised other) are associated with many outcomes, but that comparisons with an individual also have a role to play and should not be ignored in preference of class evaluations in future research.

Contribution to Knowledge

Increasing the level of physical activity in which young people engage is important to health care professionals as well as the Government. One environment where policy makers can try and positively impact levels of physical activity engaged in by young people is physical education. Whilst current policies and the national curriculum are in place to try and provide young people with positive experiences in physical education, there still remains a percentage of young people who are disengaged (amotivated) from this context.

This thesis explores the role that social comparison can play in predicting important developmental/educational outcomes in physical education. Through the completion of the studies within there are several implications which demonstrate how the research contributes to knowledge. Using both qualitative and quantitative methods this thesis examines adolescents' experiences of social comparison, engages with and listens to the participant perspective and then to links this evidence to, and tests with, both theoretical and practical based hypotheses. Through the use of different methods, the series of studies provide new knowledge concerning adolescent motives for comparison, frames of reference and outcomes of comparison in physical education. The following paragraphs describe the contribution to

theory, contribution to measurement development and practical implications that have arisen from the completion of this thesis.

There are several theoretical implications which arise from this thesis. Festinger's (1954) primary hypothesis suggests that humans compare to evaluate, however, the evidence from this thesis supports findings with adult samples, that improvement and enhancement may also be active motives for adolescents when comparing. The findings in this thesis provide a platform for researchers wishing to understand young peoples' motives for comparison in the future from which predictions concerning adolescent motives can be made. This thesis provides initial evidence concerning the differing role that different motives play in predicting outcomes and how motive dominance leads to different outcomes for individuals. These findings are the first of their kind providing new theory and knowledge in this area.

This thesis demonstrates that there are several outcomes of comparison in addition to assimilation and contrast. Study 1 in particular provides numerous outcomes that adolescents have indicated are consequences of the comparisons that they made in physical education. This provides many avenues for future research. Furthermore, this thesis has not tried to develop an additional theory of social comparison but has instead, returned to Festinger's (1954) initial hypotheses and related research in an attempt to understand social comparison in the most parsimonious way, rather than simply adding another theory to the list that has already been developed (See Table 2A.1). Additionally, this thesis has begun to add explanation and insight into why support for the big-fish-little-pond effect (BFLPE) is so frequently found. The results from the thesis suggest that comparative ability with the class is a very dominant source of information. As such, it is possible to suggest that equally able students in different classes will experience a different 'class average' for evaluation against, which might account for some of the effect of the BFLPE. For example, an individual might be below average in a highly able class, but above average in a heterogeneous class. Given the relationship between ability in class and physical self-concept seen repeatedly within this thesis and in other research perhaps the BFLPE is a reflection of this.

A different implication for theory has arisen from the investigation of self-determination theory and achievement goal theory with social comparison within this thesis. By investigating these theories simultaneously evidence of how these may interact to influence different outcomes has been demonstrated. This has theoretical implications for all three theories, not least of which is the demonstrable importance of *all* theories and their relevant parts in predicting the outcomes under investigation. Additionally, by researching

self-determination theory, achievement goal theory and social comparison simultaneously, the research shows that each is important it its own right and highlights the need for researchers to consider all of these theories in future, rather than focusing on one at a time. Furthermore, as previously highlighted in this chapter, the results concerning the potential for positive outcomes of normative comparison places a challenge to the postulations of achievement goal theory by suggesting that normative comparisons are not always detrimental to individuals competence perception and development. For example, asking someone who is perceived as better than most of their classmates to compare with an individual who is better than them could serve to boost their engagement in the lesson.

Additionally, this thesis demonstrates both qualitatively and quantitatively that young people use multiple frames of reference for comparison, furthering theoretical knowledge concerning adolescent frames of reference. The qualitative study also highlighted the need for further in-depth theoretical research examining friendship and similarity particularly given the frequency and importance that friends play in adolescents' lives. This thesis supports and extends theory (in a young sample) which demonstrates that the generalised other is in most instances more influential than an individual target, but that neither should be ignored in favour of the other and that these should be considered simultaneously or in addition to other frames of reference (for example those detailed in Study 1).

The research within this thesis in addition to providing several theoretical contributions to knowledge has also seen the development of three novel measures which researchers can use in the future to examine social comparison processes in adolescent samples.

The first measure which has been developed is the multi-item scale assessing perceived ability in class which demonstrates good internal reliability in the adolescent samples who participated in the research within this thesis (see Studies 3 & 4). One of the main criticisms of many social comparison papers is the use of single item measures to assess comparative evaluations and a lack of consistency in the measures. The development of the four item measure (which provides the additional option of indicating that one does not know their level/compare with the class) can now be used by researchers in further examinations of comparative evaluations using the class as a frame of reference and can be tested and validated in other samples both within the UK and other countries. The addition of the box for individuals to tick who do not believe that they compare with the class or claim to not know their ability compared to classmates will allow future research to examine if outcomes for these individuals are different to those who are aware of their ability within the class. This

multi-item measure for ability in class could also be adapted to form a multi-item scale for ability compared to a chosen individual and other frames of reference (such as those mentioned in Study 1).

The second contribution to measurement is the development of two methods for assessing motives for comparison. In total, motives have been assessed in four different ways during the thesis: qualitatively, by one item, multi-item scales and through forced choice. These methods of assessment have progressed as understanding of social comparison motives has improved over the course of the research. The multi-item scale however, provides a big improvement on the previous one item measure and it is this multi-item scale and the dominant measure that provide the contribution to measurement. The multi-item scale developed and used in Study 3 demonstrates that adolescents indicate comparing for all three reasons and that the questions are reliable and appropriate for adolescent aged participants. Although this measure provides insight into adolescent motives, the development of the forced choice scale, which provides dominant groups for all motives and a non-dominant group, is possibly the best method used within this thesis. This final method of analysis allows a more in-depth examination of the role of motives and, in doing so, also demonstrates that no dominance may be almost as beneficial as comparison for reasons of improvement. These two motive measures are, however, only used in one study each and future research using different samples is needed to examine their validity and reliability across samples. The development of the multi-item scale although not as useful (in the context of this thesis) as the forced choice in assessing specific difference between motives, enables an examination of motives in conjunction with perceived ability compared to an individual, which has not possible with the forced choice response due to sample sizes. Future research examining both of these measures simultaneously and with larger sample sizes is needed (particularly for the forced choice response). Overall, however these measures do provide new tools for researchers to test in other samples and in conjunction with other frames of reference.

Practical implications.

The case for understanding the drivers behind adolescent physical activity behaviour has been proposed in Chapter I. In addition to understanding theoretically what might or might not influence an adolescent's involvement in physical activity/physical education, researchers need to provide practical, evidence based solutions for teachers, practitioners and individuals working within the school environment who might interact with, and affect, an adolescent within the school environment. Drawing the findings of this thesis together, there are several implications that can be proposed. Before these practical implications are

discussed it is important to note that during the production of this thesis, the recommendations which can be made from the research have evolved and developed. This refinement has arisen from the increased knowledge and insight gained from completion of each of the studies. This means that some of the practical implications have been adapted to reflect the research findings while others have remained constant. Furthermore, the research completed in this thesis provides a basis from which the practical implications proposed can be further tested through intervention and longitudinal research.

One practical implication is the need for teachers to be educated about the importance of using social comparison information as a tool for teaching. In doing this, teachers will also be taught how to identify when they are using comparative information. This is important because comparing ourselves and other people is an inherent human process, *but* this is often done without a proper understanding of the implications that will arise from making such comparisons. As has been shown throughout this thesis, social comparison is a 'double-edged' sword and should be used wisely as the results may not always be what one might expect. Although the effects of specific teacher practices have not been examined (although it can be argued that teacher practices influence perceived motivational climate and autonomy support), the qualitative study highlights several teacher behaviours that were discussed by participants and interrelated with negative consequences. For example, teachers asking the class members to order themselves in ability level from best to worst in the class arose in conversation in conjunction with negative outcomes when perceived ability in class was low. Therefore, a further implication is to suggest to teachers that they should consider what social comparisons their practices might evoke.

Another implication relates to education of teachers and helping them to understand the importance of adolescents' perceptions of an individual's ability within the physical education class. Firstly, teachers need to understand that pupils will already use comparisons to understand and determine their place within the physical education class and that this general class-wise comparison is particularly influential. This knowledge of one's place in the class may serve to block aspiration and achievement for both low and high ability individuals. In particular for those individuals who perceive themselves to be less able than most of their classmates there are numerous negative effects and few benefits. In comparison, for those who are highly able compared to the class, there seem to be mainly positive effects. However, as stated in earlier chapters high ability in comparison to multiple targets may lead to disengagement and boredom within the lesson. It seems that perceiving oneself as better than multiple frames of reference may cap aspiration as individuals have 'nowhere to go'

within their class. In contrast, those who are high within the class and low compared to an individual still have someone they aspire to be as good as, which serves to drive them forward. A possible solution to this could be the provision of a salient comparison target by the teacher for individuals who are highly able compared to multiple targets. This would provide a standard to aim for and in doing so could serve to keep these high ability individuals engaged in the lesson. Teachers should also be educated in the knowledge that those individuals who are low in perceived ability compared to the class are probably aware of this fact, quite vulnerable to social comparison information and that their engagement may decrease when also comparing with a more able individual. Whilst those individuals with low perceived ability are clearly a key group for teacher intervention and support, good teachers should also be aware of the effects of social comparison on high performing individuals.

Based on previous research involving motivational climate and perceived autonomy support, it has been hypothesised that these variables would moderate the effects of social comparison on the outcomes under investigation. The findings suggest, however, that teachers wishing to influence the outcome of comparisons could try to decrease the level of ego climate within the class. The implications regarding perceived autonomy support are indicating that high levels are preferable and that teachers should be encouraged to use practices which support and strengthen this perception. Future research is needed, however to examine perceived autonomy support in relation to comparative evaluations with multiple frames of reference. This research would provide a more holistic understanding of how autonomy support moderates the effects of comparative evaluations which is needed before firm conclusions are drawn and implications proposed.

A further implication concerns motives for comparison and the use of or encouragement of use of different motives. As only positive effects are found for improvement, teachers could encourage adolescents to compare for this reason as opposed to self-enhancement or self-evaluation which have resulted in less favourable outcomes in many instances. Furthermore, no dominance may also be related to positive outcomes, however, further investigations which examine the combinations which lead to the grouping of no dominance are required. For example it may be that if equal levels of improvement and evaluation are indicated that this leads to more positive outcomes than equal levels of evaluation and enhancement motives. This is a hypothesis, however, and needs testing before recommendations are made.

Turning to behavioural regulations, it has been shown that these may both directly influence the dependent variables studied and moderate the effects of social comparison on

various dependent variables researched in Study 3 and Study 4. For example, these findings suggest that autonomous regulation is beneficial in both directly predicting and moderating the relationship between comparative evaluations and self-efficacy. Additionally, controlled regulation produces both direct and indirect negative effects through its moderation of the relationship between ability in class and negative affect. The practical implication here is that teachers should be attempting to increase and encourage autonomous motivation in class and decrease controlled motivation by adapting their teaching behaviours accordingly.

Teachers can use the information provided here to improve their understanding of the comparisons that adolescents make and then use this to identify which tasks in physical education might serve to decrease opportunities for class-wise comparison. For example, should the teacher perform a skill instead of using individuals within the class as demonstrators? This might serve to decrease the frequency of impact and comparisons with specific individuals and at the same time decrease negative evaluations by the rest of the class who perceived the demonstrator to be better than them. This is speculative, but based on the findings from Study 1 it seems a plausible hypothesis for future research. Teachers should also be reflecting upon whether team games or individual sports are more or less evocative regarding comparisons. For example, do team games increase individual comparison with one's opponent in contrast to individual sports which might provide more opportunity for comparisons with the entire class? A further possibility is that the activity or sport may also be important in determining the frequency and impact of comparisons, for example, are ability comparisons more likely or influential in sports such as netball, tennis or swimming? It is not yet possible to draw firm conclusions or make practical implications regarding these specifics, but these are certainly topics that teachers can explore further when considering and evaluating their own practice. Future research, however, should be able to provide evidence-based knowledge to address these questions.

Drawing these implications together, it is clear that although recommendations can be made there is still a wealth of research surrounding activities, tasks, interventions and other dependent variables which is required. Research investigating these areas will provide more information and allow for the development of further practical implications for teachers and those working in the school environment. To highlight the importance of the need for future research, the systematic review has demonstrated the small number of studies completed investigating social comparison in physical education, and even when the four studies from this thesis are added, the total is still only nine. This small number of studies, in contrast to other theories such as achievement goal theory and self-determination theory which between

them have many publications, demonstrates that the platform that is presently available from which to make recommendations for social comparison is much smaller, and therefore only a few implications for practice are provided. Additionally, the research demonstrates that although social comparison is an 'old' concept, it is still poorly understood and in the very early stages of examination within physical education. Future research is needed therefore, before any major practical implications are made or lobbying undertaken for policy change based on the findings of social comparison research.

Limitations of Research and Recommendations for Future Research

The following section outlines the various limitations that should be acknowledged when assessing the quality of the research contained within this thesis as a whole. Although the limitations of each study have already been discussed at the end of each chapter, the following section serves to bring these together in an overview of the limitations of the research as a collective. In addition to providing the limitations, this section also details future directions associated with the limitations and ends by providing other recommendations for future research.

One of the main limitations from this thesis is that the quantitative research is cross-sectional which means that causality cannot be determined. Although Chanal and Sarrazin (2007) have already examined comparative evaluations longitudinally, there is certainly a need for more studies designed in this way to further explore and examine how comparisons affect individuals over a period of time. These studies could be qualitative or quantitative and would allow the direction of relationships to be determined. In addition longitudinal research could seek to track whether comparison processes change as adolescents or children age.

Another limitation involves the measures used to assess various constructs. Firstly, the use of single items to measure variables (such as ability in class compared to an individual) in the quantitative studies has meant that no assessment of reliability or validity of answers has been possible. Secondly, the Cronbach's alpha for external behavioural regulation was extremely low which has meant that a more in-depth analysis of behavioural regulations is not possible. Thirdly, the majority of the quantitative analysis has involved self-report measures which may have led to mono-method bias. This in turn could have resulted in inflated relationships through shared method variance. Future research would benefit from: collecting and utilising objective data; developing multi-item scales for assessing multiple frames of reference; using a different measure for behavioural regulations; and including teacher or parent ratings of performance to supplement the self-report measures.

The research completed within this thesis has relied upon school, teacher and parental approval, which has meant that access was only available to students within schools where the headteacher has been interested in the research and when parents and teachers have allowed their children/pupils to take part. This means that the samples are biased and include participants of schools with headteachers who are interested in research and improving practices within their schools. Furthermore, all schools which took part were classed as above average socio-economic status and future research is needed to examine if similar relationships exist across all socio-economic levels. The participants selected to take part in Study 1 were also chosen by teachers which meant that the author has been reliant upon the teachers to choose students from a range of abilities rather than being able to select them based on grade data for example. In the future researchers wishing to undertake a similar activity would be wise to ask to select students based on grade data instead of teacher opinion. Another limitation concerning participants has been the small number allocated to certain groups in Study 4. In the future, research using the forced choice measure should look to collect a sample size of more than 500, particularly when there is the opportunity of opting out (indicating not comparing) of answering a given question.

In addition to the aforementioned future research avenues there are several other recommendations for future research which could be explored to provide increased knowledge and understanding of social comparisons within physical education (the school environment more broadly) and other sporting environments. These ideas have evolved during the course of the PhD which this thesis represents. These ideas are not an exhaustive list of all the possible avenues that a researcher may follow, but provide an overview of some which may be useful for both theory and practical knowledge growth.

One possible avenue for future research would be an examination of the effects of making adolescents aware of the comparisons that they make. This research would look to address whether being ‘in tune’ with and analysing the comparisons that one makes could negate some of the negative effects and improve the positive consequences of comparison. On the other hand, drawing attention to comparisons may only serve to increase the negative effects without any benefits to the individual.

Another route could be to investigate the effects of comparison with other frames of reference which would provide a more rounded view of social comparison processes. The class and an individual were focused on within this thesis because these were the two most frequently cited targets in Study 1. Research investigating other frames of reference such as a small group or individuals outside of the class, however, may also provide useful insight into

whether it is possible to negate this idea of constrained aspiration. This theme has emerged throughout the thesis, but is untested and requires further examination. This suggests that those high in both ability in class and compared to an individual might benefit from the teacher comparing them to more able students in other classes, or those at the bottom of the class to others in less able classes. These are suggestions, however, which require further research, particularly given the 'strength of influence' of comparison with the class on the various outcomes investigated so far. Frames of reference also warrant further research investigating multiple frames at a time. Given the interactions that have been seen in this thesis between the class and a chosen individual, future research should continue to examine the direct and combined effects of comparisons with multiple frames of reference. This will provide a better understanding of how these frames of reference behave and interact.

This thesis focused specifically on physical education and ability comparisons within that context. Research in the future, however, could seek to examine social comparison in sporting contexts or more broadly within the school environment. Given that drop out (ceasing participation in a sport) is seen within sporting contexts it would be worth investigating the role of social comparison in long term participation and drop out. Is it possible that evaluations of ability are key determinants of long term participation, but so far hypotheses such as this remain unresearched. For example, if physical education is the setting in which young people develop their evaluations of ability and this is then confirmed in sports clubs, the additive effect could lead to drop out. These postulations are of course speculative, but seem sensible given the findings contained within this thesis.

Festinger's (1954) theory focused on ability and opinion comparisons; however, as demonstrated in Study 1, although not always aware of them, subconscious evaluations about other aspects of the body such as flexibility may also be made by adolescents in their physical education lessons. This comparison of other aspects or attributes ties into another area which warrants attention and investigation, that of activity specificity. This is defined as the specific components of an activity i.e. is it individual or team focused, is it indoor or outdoor, does it require full physical education kit or a swimming costume? Future research could examine other attributes that individuals may compare such as body shape and flexibility and determine whether or not there are specific parts of certain activities which serve to increase the frequencies or the influence of these comparisons.

The studies completed within this thesis are some of the first which try to understand what role motives might play in the comparison process and what motives adolescents use or are aware of using. This thesis provides a mixture of results, but demonstrates a number of

methods that future research could use for examining adolescents' motives. Moreover, motives provide a relatively new area of research, for example specific links between motives and frames of reference have yet to be examined in detail. Relationships such as this, between motive and target choice, begin to become evident in Study 1. This avenue was not pursued further within this thesis although questions such as these are worthy of investigation. An examination of whether motives change depending upon the dimension or characteristic under comparison also warrants further attention. For example, are comparisons of body shape motivated more by evaluation than self-improvement? Research examining these areas could provide useful information for researchers and teachers who wish to try and negate some of the negative consequences of comparative evaluations and increase the likelihood of positive consequences. I.e. if a certain motive produces the most adaptive outcomes for a particular characteristic under comparison, teachers could encourage the use of this motive in instances when that particular characteristic is the focus of comparison.

In the literature review (Chapter IIA), the experimental studies by Duquin (1980a; 1980b; 1986) have been touched on. Very few studies have subsequently used experimental methodologies to examine social comparison processes in adolescent samples. There are at least two areas within social comparison which might benefit from this type of research. The first is motives. If motives can be manipulated, it might be possible to see the effect of changing motives. This could help teachers understand how they too might try and encourage or manipulate motives for comparison to increase the likelihood of positive outcomes in physical education. This links closely to the second area, priming, which is another avenue which could provide useful insight into social comparison processes. For example investigations could look to examine if it is possible to prime comparative ability and, if so, if this can be used to produce positive outcomes for individuals. Experimental studies such as this could provide valuable insight into the relationships that have so far been examined from a cross-sectional perspective and aid in the development of practical implications and strategies that teachers could use to try and boost the prospect of positive outcomes resulting from comparison in physical education.

Study 1 has also highlighted that exclusion may be an outcome of comparison. Peer victimisation and bullying are two serious outcomes which may result from poor ability in a domain such as physical education. This thesis is concerned with understanding the comparison process in general and has not touch upon these issues, however, they certainly warrant research attention. For example, if you are the worst in the class are you bullied due to your incompetence? Alternatively, if an individual is best in the class, is he/she worshipped

by his/her classmates, or bullied by classmates because they are jealous of his/her abilities? These are all important educational questions which need investigating and which social comparison may be able to shed light upon.

Another recommendation for research concerns the examination of target choice, whereby researchers could investigate whether task or ego goal orientation affects such a choice. For example, would an ego orientated individual be more likely to make downward comparisons than an individual motivated by task goals who wishes to self-improve? Finally, an investigation into the role of friendship and similarity would be beneficial particularly given the frequency of friendship mentioned in Study 1 and additionally whether this friendship could moderate the impact of social comparison. For example, if you are the worst in the class, but also have a friend in the class who is supportive, does that serve to help your enjoyment and engagement, or does it not matter at all? To summarise, there are many recommendations for future research all of which will provide useful information for researchers and teachers interested in understanding either social comparison itself or outcomes in physical education, sport or the school context in general.

A further possibly for future research concerns the Dunning-Kruger effect (Kruger & Dunning, 1999) which postulates that people tend to over-estimate their capabilities in domains/attributes such as physical abilities. This effect is suggested to occur because individuals who are unskilled may "reach erroneous conclusions and make unfortunate choices, but their incompetence robs them of the metacognitive ability to realize it" (p. 1). This theory could provide a fruitful avenue for future research investigating social comparison in physical education because it has implications for the way that comparison information is interpreted and/or used by individuals when forming opinions about their abilities. The theory suggests that incompetent individuals are less able than competent peers to assess their own performance level by means of social comparison i.e. they cannot recognise higher ability in others, which may in turn effect outcomes for individuals themselves. If individuals are helped to improve their ability, however, it is suggested that they are then provided with the metacognitive skills in order to examine and realise their poor level of ability. Future research investigating whether this effect occurs in physical education and how social comparison might be used to provide people with the metacognitive skills to recognise poor performance in this setting are also needed. Additionally, research determining whether this effect develops as a defensive mechanism as people age to protect them from feelings of incompetency or if it is an inherent process which humans engage in is also required.

This thesis has linked self-determination and achievement goal theory with social comparison however, there are other theories of motivation such as Dweck's (1999) approach which also draw upon on social comparison without fully investigating the social comparisons themselves. Dweck's work on incremental and entity beliefs proposes that an individuals' perception of whether attributes such as ability are fixed (entity) or changeable (incremental) underlie their actions and decisions. These beliefs have subsequently (Dweck & Leggett, 1988) been linked to goal endorsement and as such draw upon the importance of social comparison information in determining outcomes for individuals. For example, Dweck and Leggert (1988) found that when facing adverse feedback about achievement, that those who endorsed performance goals and possessed an entity belief were more likely to react negatively. Findings such as these highlight the need to further understand how social comparison might underpin different outcomes which form part of motivational theories. This is pertinent given the findings in this thesis which suggest that normative comparisons may not always be as detrimental to individuals which has previously been proposed by motivation theories such as achievement goals.

Final Conclusions

This thesis provides new knowledge concerning adolescent social comparisons in physical education and how these are associated with important educational outcomes. More specifically, the research provides support for the relationship between comparative evaluations with the class and individual outcomes, whilst the role of the individual remains specific to the dependent variable in question. Collectively, the findings demonstrate that social comparison is a double-edged sword which can produce both positive and negative outcomes for individuals. This thesis highlights the importance of investigating social comparison in adolescent samples through its demonstration that comparing with others is a key method used by adolescents to evaluate their abilities in physical education. In turn, these comparisons are able to affect important developmental and educational outcomes. Moreover, the findings attest to the need to examine both the moderating and direct role of motives as well as providing evidence for the importance of including environmental variables. Finally, future research must continue to examine multiple aspects of social comparison processes simultaneously, in order that these can be properly understood and interventions developed which produce positive outcomes for individuals in both physical education and other contexts.

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Appendices

Appendix A

In out form detailing inclusion criteria

Correlates of social comparison in physical education

In/Out Form

Author and year | Today's date

Study ID Number | Reviewer

Question	Yes	Not Clear	No	Further information:
Is the study grounded/conceptualised in social comparison theory? e.g. BFLPE; other models such as assimilation/contrast, SEM etc.				State the main purpose of the study
Is the study based in a physical education?				
Is the age group studied **aged 0-11 and/or 12-18 yrs**?				Which age group?
Has some aspect associated with social comparison theory been assessed? e.g BFLPE?				State measures reported:
English language?				
Has it been published in a peer review journal?				
Population has a disease or health problem?				
Population has a disability of any kind?				

IF THE ANSWER TO ANY OF THE ABOVE IS SHADED BOX, <u>EXCLUDE</u> THE STUDY (FROM THIS INITIAL SCREENING)

This study is:	**Included** ☐	**Excluded** ☐	**Not sure** ☐
	Details:		
Other information:			

Appendix B

Example Data extraction form

Data extraction Form	
Date of extraction	
Record Number	
Author	
Year	
Article title	
Citation	
Type of publication	
Country of origin	
Source of funding	

Study Characteristics	
Aim/objective	
Study design	
Study inclusion/exclusion criteria	
Recruitment procedure	
Unit of allocation	

Participant characteristics	
Age	
Gender	
Ethnicity	
Socio-economic status	
Weight Status	
sample size	
Measures IVs/Dvs	
Statistical Analysis	
Results	

Appendix C

Study 1 Interview Schedule

Participant Information

Participant number:
School:
Tutor Group:
Pseudonym:
DOB:
Sex:
Interview date:
Time begun:
Time ended:
Duration of interview:

Good morning/afternoon, I am Jemima a researcher from Loughborough University and I have come here today to talk to you about who you compare yourself with in physical education. I would like to hear your opinions and ideas, there are no right or wrong answers to any of the questions, so please be honest when answering. If you do not know the answer to a question immediately please take time to pause and think the question through and then answer it. If you still do not know the answer then please just say so rather than making up an answer. At the end of each section I will ask you if you have anything to add, if you feel that I haven't asked you something important then please tell me anything you think might be important.

All the information that you give me will remain **strictly confidential,** your teachers will not be told what you have said. When writing up the results from the study I may wish to use quotes from the interview to emphasise certain points. These quotes will be anonymous and there will be no way that they can be traced back to you. I will be using audio equipment to record the interview, however, this is purely to allow me to transcribe it in order that accurate analysis and interpretation of the data can occur.

Your participation is voluntary and as such you have rights. Firstly you are free to decline answering any questions that you do not wish to answer, please answer 'no comment' if you feel uncomfortable answering any question. Secondly you are free to withdraw from the study at any time during and after the interview has taken place without explanation.

Please ask any questions that you have throughout the interview for example if you do not understand what I am asking and need clarification. Do you have any questions about what you have been told so far?

Rapport building questions:

So have you had a good morning/day so far?
Have there been any lessons that you have really liked or disliked so far today?
Why was that lesson so good or bad?
Do you enjoy that subject more than PE?
What have you been doing in PE recently?
Do you take part in any activities outside of school? Or would you like to?
Do you enjoy PE lessons? If yes then why? If no, then why?

I'd like you to have a think about your PE lessons so that we can chat about who you compare with.

Section 1:

- Can you tell me if you compare yourself with your **PE class** as a whole?
- Do you think about how good you are within your class?

Can you tell me **what** it is that you are comparing?
-- Your abilities?
-- How much effort you put in?
-- Do you compare the feedback that you get from the teacher to the class in general?

- Can you tell me **why** you compare with this group (class average)?

-- Can you explain this to me using an example?

- Are there particular times **when** you make these comparisons?

-- Is it before or after a class in the changing rooms when chatting to your friends?
-- Can you give me an example of this?

- Can you tell me **how** you compare with this group?

-- Do you watch what they are doing and compare?
-- Do you make the same comparisons when you do **different activities** within your PE lessons?
-- Do you make more comparisons during certain activities?
If yes then, Why do you think this is?
-- Do you discuss these comparisons with your friends, or keep them to yourself?
-- Do you use sports day to compare with the class?
-- Can you give me an example of when you do this?

Now we have talked about the comparisons that you make, can we go on to talk about how these make you feel.

So, could you tell me how you feel emotionally when you compare yourself with this group?
-- If they have previously said that they are at the lower end of the class ability wise then ask them == Do you feel admiration for the rest of the groups abilities, or frustrated that you are not as good as them? Or possibly depressed or ashamed? Or do you feel inspired or envious?
-- If you feel that this group is less able than you, do you feel sympathetic towards them, or enjoy your superiority over them?

Do you think that your performance changes after you have made this comparison?
Do you think that you feel more able to complete a task after making this comparison?
Does the amount of effort you put in change after you make this comparison?
Do you feel that you are more persistent with a task after making this comparison?
Do you think that your concentration on a task increases after you have made this comparison?
Can you think of any other effects that we haven't talked about so far?

Section 2:

- When you think about your abilities in PE, is there **anyone in particular** in your class that you compare with or maybe **a group of people** within your class?
- Do you have a **best friend** that you compare with?
- Do you feel that you are more able than this person/these people?
- Can you tell me **what** it is that you are comparing?

-- Abilities?
-- Effort you put in in comparison to them?
-- Skill level?
-- Technique/technical aspects?
-- Grades?
-- Feedback that you get from the teacher to these others?
-- Does this person get a lot of feedback from the teacher? Do you compare the feedback you both get?
-- Does the teacher compare you to this person?

- Can you tell me **why** you compare with these people/this person?

-- Is it because they are your best friend/ friends?
-- Are they your age and someone who you look up to?
-- Do you compare with these people in most subjects and it is therefore 'normal' for you to compare with them in PE as well?
-- Do you talk to them about the fact that they are better or worse than you?
-- Do you compare with them to protect yourself/make yourself feel better?
-- Do you compare skills to try and enhance your abilities and learn from them?
-- Do you compare to find out if your feelings about how good you are are right?
-- Do you feel you are similar to them and that is why you compare yourself with them?

- Are there particular times **when** you make these comparisons?

-- For example, after a demonstration has been given?
-- Before or after a class in the changing rooms?
-- During break times or at weekends if you see them then?
-- Can you give me an example of this?

- Can you tell me **how** you compare with these people?

-- Do you watch what they are doing and compare it to what you think you are doing?
-- Do you make the same comparisons when you do different activities/sports?
-- Do you discuss these comparisons with your friends, or keep them to yourself?
-- Do you talk about skills and explain to each other how you do them?
-- Do you use sports day for example to compare with this person/people?
-- Do awards in assembly allow you to compare yourself with how this person/these people is/are doing?
-- Or do you use reports and grades to compare with your class?
-- Can you give me an example of when you do this?

- Could you tell me how you **feel emotionally** when you compare yourself with this person/people?

- ashamed, angry, happy or motivated?
Less able - admiration for their abilities, or frustrated that you are not as good as them? Or possibly depressed or ashamed? Or do you feel inspired or envious?
More able - sympathetic, or enjoy your superiority over them?
If better - do you help them and feel pride in being able to do this?

- Do you think your **behaviour** changes after you have made these comparisons?

Do you think that your *performance* changes after you have made this comparison?
Do you think that you feel more able to complete a task after making this comparison?
Does the amount of *effort* you put in change after you make this comparison?
Do you feel that you are *more persistent* with a task after making this comparison?
Do you think that your *concentration* on a task increases after you have made this comparison?
Do you think that your *self confidence* increases/decreases after making this comparison?

Can you think of any other effects that we haven't talked about so far?

Section 3:

- Is there anyone else that you compare with **outside** of your PE class?
- for example friends, a sibling, team mates or opponents?
- Can you tell me **what** it is that you are comparing?

-- Are you comparing your ability?
-- Do you feel that you are *more able* than this person/these people?
-- Effort you put in in comparison to them?
-- Skill level?
-- Technique/technical aspects?
-- Grades in PE and do you compare these against this group?
-- Do you talk to these people about feedback you get from the teacher?
--When do you talk about the feedback from the teacher?
-- Does the teacher compare you to these people?
-- Can you give me an example of this?

- Can you tell me **why** you compare with this group and make these comparisons?

-- Are your best friend/ friend?
-- Is it someone who is older than you that respect, or someone you would like to be like, or someone to learn from?
-- Do you compare with these people in most subjects and it is therefore 'normal' for you to compare with them in PE as well?
-- Do you talk about the fact that they are better or worse than you?
-- Do you compare with this group to protect yourself/make yourself feel better?
-- Do you compare skills to try and enhance your abilities and learn from others?
-- Do you compare to find out if your feelings about how good you are are right?
-- Do you feel that you are similar to this group and that is why you compare yourself with them?

- Are there particular times **when** you make these comparisons?
    - Do you compare your abilities with these people during break times?
    - Is it at weekends if you see them then?

- Can you tell me **how** you compare with these people?

-- Do you watch what they are doing and compare it to what you think you are doing?
-- Do you make the same comparisons when you do different activities within your PE lessons?
-- Do you discuss these comparisons with your friends, or keep them to yourself?

-- Do you talk about skills and explain to each other how you do them?
-- Do you use sports day for example to compare with these people?
-- Do awards in assembly allow you to compare to this person?
-- Do you use reports and grades to compare with this person/people?
-- Can you give me an example of these comparisons?

- Could you tell me how you **feel emotionally** when you compare yourself with this person/people?

Less able - do you feel admiration for their abilities, or frustrated that you are not as good as them? Or possibly depressed or ashamed? Or do you feel inspired or envious?
More able - Do you feel sympathetic towards them, or enjoy your superiority over them?
Do you help them and feel pride in being able to do this?
Can you give me an example of when you have felt like this?

Does your **behaviour change** after you compare with this person/these people?
Do you think that your performance changes?
Do you think that you feel more able to complete a task after making this comparison?
Does the amount of effort you put in change after you make this comparison?
Do you feel that you are more persistent with a task after making this comparison?
Do you think that your concentration on a task increases after you have made this comparison?
Do you think that your self confidence increases/decreases after making this comparison?
Can you give me an example of this?
Can you think of any other effects that we haven't talked about so far?

Section 4:

- We've now talked about your class, individuals or groups within the class and other people who you compare with. Can you now tell me if you compare yourself with your **year group** as a whole?
- Where do you see yourself in relation to this group?
- Are you better than most other people?
- Do you have an idea of what the year average is? How do you know what this is? And do you compare yourself to this average?

- Can you tell me **what** it is that you are comparing?

--Ability?
-- Effort?
-- Skill level?
-- Technique/technical aspects?
-- Grades?
-- Feedback from teacher?
-- Does your teacher compare you against the rest of the year group?

- Can you tell me **why** you compare with this group and make these comparisons?

-- Do you compare with this group to protect yourself/make yourself feel better?
-- Do you compare skills to try and enhance your abilities and learn from others?
-- Do you compare to find out if your feelings about how good you are are right?
-- Do you feel that you are similar to this group and that is why you compare yourself with them?

- Are there particular times **when** you make these comparisons?

-- Or is it before or after a class in the changing rooms?
-- Can you give me an example of when you make these comparisons?

- Can you tell me **how** you compare with this group?

-- Do you think of the year average?
-- Do you make the same comparisons when you do different activities within your PE lessons?
-- Do you discuss these comparisons with your friends, or keep them to yourself?
-- Do you use sports day for example to compare with the year group?
-- Do awards in assembly allow you to compare with your year group?
-- Or do you use reports and grades to compare with your year group?

Could you tell me how you **feel emotionally** when you compare with your year group?
Less able - then do you feel admiration for their abilities, or frustrated that you are not as good as them? Or possibly depressed or ashamed? Or do you feel inspired or envious?
More able – Do you feel sympathetic towards them, or enjoy your superiority over them?
Can you give me an example of when you have felt like this?

Does **your behaviour** change after you have compared with your year group?
Do you think that your performance changes after you have made this comparison?
Do you think that you feel more able to complete a task after making this comparison?
Does the amount of effort you put in change after you make this comparison?
Do you feel that you are more persistent with a task after making this comparison?
Do you think that your concentration on a task increases after you have made this comparison?
Do you think that your self confidence increases or decreases after making this comparison?

Are there any other effects you can think of from making these comparisons that we haven't talked about?

Thinking back to the four different groups that we have talked about, can you tell me which group or person is the most important to you when you make comparisons?
Can you tell me why this person/group is the most important?

Are all your lessons **mixed with boys&girls?**
- If you do have some activities alone, do you think that you compare with different people in these lessons?

Earlier today you filled out a questionnaire which assesses how you feel about your **strength, endurance, flexibility, health, coordination, physical activity, body fat, sport competence, appearance**. Can you tell me which you feel positively about and which you feel negatively about and also which out of these that you feel is most important to you?
Can you tell me why you have picked these things?
Can you tell me why x is important to you?
Can you tell me which if any of the groups we have talked about you have used in the past to come to feel the way you do about yourself?

Appendix D

Study 1 – Shortened Interview Schedule/Crib Sheet

Who
- Class Average
- Particular person within class
- Outside PE class
- Year group

What - examples
- Abilities - technique
- Effort - grades
- skill level - teacher feedback

Why - examples
- close other/friend? - To protect yourself and make you feel better?
- To evaluate? - To improve and learn from others?
- To validate?

When - examples
- before class? - At the end?
- At the start of class - During games?
- During class? - After demonstrations?

How - examples
- by watching and comparing what you do?
- Does it depend on the activity/sport you are doing?
- Sports day?
- Assembly awards?
- Reports/grades?

How do these comparisons make you **feel emotionally**?
Do these comparisons influence your **behaviour**?
Do you think this affects how you feel **about yourself**? E.g.confidence/effort

Can you tell me which group/person is the most important to you when you make comparisons?
- Can you tell me why this person/group is the most important?

Are all your lessons **mixed with boys&girls?**
- If you do have some activities alone, do you think that you compare with different people in these lessons?

Earlier today you filled out a questionnaire which assesses how you feel about your **strength, endurance, flexibility, health, coordination, physical activity, body fat, sport competence** and **appearance**.
- Can you tell me which you feel positively about and which you feel negatively about?
- Can you tell me why you feel like this?
- Can you tell me which is most important to you?
- Can you tell me why this is the most important to you?
- Can you tell me if comparisons with your peers or any of the groups mentioned previously have influenced how you feel about yourself?

Appendix E

Physical Self-Description Questionnaire

Loughborough University

Physical Self-Description Questionnaire

The following questionnaire consists of 70 statements

Please answer each one by circling the number which best represents your opinion for each statement

There are no right or wrong answers

Please be honest when answering

Please ask questions if you don't understand anything

		False	Mostly False	More False than True	More True than False	Mostly True	True
1.	When I get sick I feel so bad that I cannot even get out of bed.	1	2	3	4	5	6
2.	I feel confident when doing coordinated movements.	1	2	3	4	5	6
3.	Several times a week I exercise or play hard enough to breathe hard (to huff and puff).		2	3	4	5	6
4.	I am too fat.	1	2	3	4	5	6
5.	Other people think I am good at sports.	1	2	3	4	5	6
6.	I am satisfied with the kind of person I am physically.	1	2	3	4	5	6
7.	I am attractive for my age.	1	2	3	4	5	6
8.	I am a physically strong person.	1	2	3	4	5	6
9.	I am good at bending, twisting and turning my body.	1	2	3	4	5	6
10.	I can run a long way without stopping.	1	2	3	4	5	6
11.	Overall, most things I do turn out well.	1	2	3	4	5	6
12.	I usually catch whatever illness (flu, virus, cold etc.) is going around.	1	2	3	4	5	6
13.	Controlling movements of my body comes easily to me.	1	2	3	4	5	6
14.	I often do exercise or activities that make me breathe hard.	1	2	3	4	5	6
15.	My waist is too large.	1	2	3	4	5	6
16.	I am good at most sports.	1	2	3	4	5	6
17.	Physically, I am happy with myself.	1	2	3	4	5	6
18.	I have a nice looking face.	1	2	3	4	5	6
19.	I have a lot of power in my body.	1	2	3	4	5	6
20.	My body is flexible.	1	2	3	4	5	6
21.	I would do well in a test of physical endurance and stamina.	1	2	3	4	5	6
22.	I don’t have much to be proud of.	1	2	3	4	5	6

23.	I am sick so often that I cannot do all the things I want to do.	1	2	3	4	5	6
24.	I am good at coordinated movements.	1	2	3	4	5	6
25.	I do exercise or activity three or four times a week that makes me huff and puff and lasts at least 30 minutes.	1	2	3	4	5	6
26.	I have too much fat on my body.	1	2	3	4	5	6
27.	Most sports are easy for me.	1	2	3	4	5	6
28.	I feel good about the way I look and what I can do physically.	1	2	3	4	5	6
29.	I'm better looking than most of my friends.	1	2	3	4	5	6
30.	I am stronger than most people my age.	1	2	3	4	5	6
31.	My body is stiff and inflexible.	1	2	3	4	5	6
32.	I could jog 3 miles without stopping.	1	2	3	4	5	6
33.	I feel that my life is not very useful.	1	2	3	4	5	6
34.	I hardly ever get ill or sick.	1	2	3	4	5	6
35.	I can perform movements smoothly in most physical activities.	1	2	3	4	5	6
36.	I do physically active things (like jogging, dancing, cycling, aerobics, gym or swimming) at least three times a week	1	2	3	4	5	6
37.	I am overweight.	1	2	3	4	5	6
38.	I have good sports skills.	1	2	3	4	5	6
39.	Physically I feel good about myself.	1	2	3	4	5	6
40.	I am ugly.	1	2	3	4	5	6
41.	I am weak and have no muscles.	1	2	3	4	5	6
42.	My body parts bend and move in most directions well.	1	2	3	4	5	6
43.	I think I could run a long way without getting tired.	1	2	3	4	5	6
44.	Overall, I'm no good.	1	2	3	4	5	6
45.	I get sick a lot.	1	2	3	4	5	6
46.	I find my body handles coordinated movements with ease.	1	2	3	4	5	6

47.	I do lots of sports, dance, gym or other physical activities.	1	2	3	4	5	6
48.	My stomach is too big.	1	2	3	4	5	6
49.	I am better at sports than most of my friends.	1	2	3	4	5	6
50.	I feel good about who I am and what I can do physically.	1	2	3	4	5	6
51.	I am good looking.	1	2	3	4	5	6
52.	I would do well in a test of strength.	1	2	3	4	5	6
53.	I think I am flexible enough for most sports.	1	2	3	4	5	6
54.	I can be physically active for a long period of time without getting tired.	1	2	3	4	5	6
55.	Most things I do, I do well.	1	2	3	4	5	6
56.	When I get sick it takes me a long time to get better.	1	2	3	4	5	6
57.	I am graceful and coordinated when I do sports and activities.	1	2	3	4	5	6
58.	I do sports, exercise, dance or other physical activities almost every day.	1	2	3	4	5	6
59.	Other people think that I am fat.	1	2	3	4	5	6
60.	I play sports well.	1	2	3	4	5	6
61.	I feel good about who I am physically.	1	2	3	4	5	6
62.	Nobody thinks that I'm good looking.	1	2	3	4	5	6
63.	I am good at lifting heavy objects.	1	2	3	4	5	6
64.	I think I would perform well on a test measuring flexibility.	1	2	3	4	5	6
65.	I am good at endurance activities like distance running, aerobics, cycling, swimming or cross-country skiing.	1	2	3	4	5	6
66.	Overall, I have a lot to be proud of.	1	2	3	4	5	6
67.	I have to go to the doctor because of illness more than most people my age.	1	2	3	4	5	6
68.	Overall, I am failure.	1	2	3	4	5	6
69.	I usually stay healthy even when my friends get sick.	1	2	3	4	5	6
70.	Nothing I do ever seems to turn out right.	1	2	3	4	5	6

Thank you for completing the questionnaire

Please go back and check you have answered every question and then hand it in

Appendix F

Study 1 – Ethical Approval and Ethics Checklist and Research Proposal

Ethical Approval Granted Via Email

From: Zoe Stockdale [mailto:Z.C.Stockdale@lboro.ac.uk]
Sent: 12th March 2010 16:57
To: Christopher Spray
Subject: RE: Provisional feedback from EAC R10-P17

Dear Chris,
Thank you for your response to the Committee's comments.
I can confirm that your response satisfies the conditions for clearance.
Kind Regards,
Zoe

Mrs Zoë Stockdale
Secretary, Ethical Advisory Committee, Research Office, Tel: 01509 222423, Email: Z.C.Stockdale@lboro.ac.uk

From: Zoe Stockdale [mailto:Z.C.Stockdale@lboro.ac.uk]
Sent: 19 February 2010 16:48
To: Christopher Spray; Jemima Barnes; Jacqueline Green
Subject: Provisional feedback from EAC

Dear Colleagues,

The EAC considered your study titled, 'Social comparison processes in physical education' at the meeting earlier this week.
The minutes of the Committee are awaiting Chair's approval before official confirmation can be released and unfortunately I am on annual leave Monday and Tuesday of next week.
Therefore I am sending provisional feedback of the EAC's decision, which could be subject to change, but from which you can make any necessary amendments whilst awaiting final confirmation.
The provisional feedback is as follows:

Social comparison processes in physical education
Dr C Spray, J Barnes
R10-P17

The Committee agreed to issue clearance to proceed subject to the following conditions:

- That the Participant Information Sheet was amended to remove the double negative in the 4th paragraph.
- That clarification was provided as to how the submitted interview section would be conducted. The Committee noted that if all submitted questions were to be asked, this would be a heavy time demand on the participants.
- That the children selected for participation were from a spread of abilities, rather than just the top and bottom performers.
- That support protocols were in place should any distress be caused by the issues raised, e.g. body image, self esteem

I apologise for any inconvenience caused.
Kind Regards,
Zoe

Mrs Zoë Stockdale
Secretary, Ethical Advisory Committee, Research Office, Tel: 01509 222423, Email: Z.C.Stockdale@lboro.ac.uk

Ethical Clearance Checklist

ETHICAL ADVISORY COMMITTEE

Ethical Clearance Checklist

(TO BE COMPLETED FOR ***ALL*** INVESTIGATIONS INVOLVING HUMAN PARTICIPANTS)

If your research is being conducted off-campus and ethical approval has been granted by an external ethics committee, you may not need to seek full approval from the University Ethical Advisory Committee. However you will be expected to provide evidence of approval and the terms on which this approval has been granted.

If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee for confirmation.

If your research is transferring into Loughborough University and approval was obtained from your originating institution, there is a requirement on the University to ensure that appropriate approvals are in place.

If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee with evidence of former approval and the terms on which this approval has been granted.

It is the responsibility of the individual investigators to ensure that there is appropriate insurance cover for their investigation.

If you are at all unsure about whether or not your study is covered, please contact the Finance Office to check.

Section A: Investigators

Title of Investigation

Social comparison processes in physical education.

Name, Status and Email Address of Senior Investigators (University Staff Research Grade II and above):

(Please underline responsible investigator where appropriate)

Dr Christopher Spray

C.M.Spray@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences

Name, Status and Email Address of Other Investigators (other University Staff and Students):

Jemima Barnes MSc – PhD research student

J.S.Barnes@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences

A1. Do investigators have previous experience of, and/or adequate training in, the methods employed?

Yes ☒ **No**† ☐ †If **No**, Please provide details below

A2. Will junior researchers/students be under the direct supervision of an experienced member of staff?

Yes ☒ **No**† ☐ †If **No**, Please provide details below

A3. Will junior researchers/students be expected to undertake physically invasive procedures (not covered by a generic protocol) during the course of the research?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

A4. Are researchers in a position of direct authority with regard to participants (eg academic staff using student participants, sports coaches using his/her athletes in training)?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section B: Participants

Vulnerable Groups

Will participants be knowingly recruited from one or more of the following vulnerable groups?

B1. Children under 18 years of age **Yes**[#] ☒ No ☐

(please refer to published guidelines)

B2. People over 65 years of age **Yes**[#] ☐ No ☒

B3. Pregnant women **Yes**[#] ☐ No ☒

B4. People with mental illness **Yes**[#] ☐ No ☒

B5. Prisoners/Detained persons **Yes**[#] ☐ No ☒

B6. Other vulnerable group (please specify) **Yes**[#] ☐ No ☒

 # If the procedure is covered by an existing generic protocol which refers specifically to the vulnerable group(s), please insert reference number here

If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

Chaperoning Participants

If appropriate, e.g. studies which involve vulnerable participants, taking physical measures or intrusion of participants' privacy:

B7. Will participants be chaperoned by more than one investigator at all times?

Yes ☐ **No*** ☒ **N/A**[†] ☐ [†]If **N/A,** please provide details below

B8. Will at least one investigator of the same sex as the participant(s) be present throughout the investigation?

Yes ☐ **No*** ☒ **N/A**[†] ☐ [†]If **N/A,** please provide details below

B9. Will participants be visited at home?

Yes* ☐ No ☒ **N/A**[†] ☐ [†]If **N/A,** please provide details below

*** Please submit a full application to the Ethical Advisory Committee.**

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section C: Methodology/Procedures

To the best of your knowledge, please indicate whether the proposed study:

C1. Involves taking bodily samples **Yes**[#] ☐ No ☒

(please refer to published guidelines)

C2. Involves procedures which are likely to cause physical, psychological, social or emotional distress to participants **Yes**[#] ☐ No ☒

C3. Is designed to be challenging physically or psychologically in any way (includes any study involving physical exercise) **Yes**[#] ☐ No ☒

 # If the procedure is covered by an existing generic protocol, please insert reference number here

If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

C4. Exposes participants to risks or distress greater than those encountered in their normal lifestyle **Yes*** ☐ No ☒

C5. Involves collection of body secretions by invasive methods **Yes*** ☐ No ☒

C6. Prescribes intake of compounds additional to daily diet or other dietary manipulation/supplementation **Yes*** ☐ No ☒

C7. Involves testing new equipment **Yes*** ☐ No ☒

C8. Involves pharmaceutical drugs **Yes*** ☐ No ☒

(please refer to published guidelines)

C9. Involves use of radiation **Yes*** ☐ No ☒

(please refer to published guidelines). Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays).

C10. Involves use of hazardous materials **Yes*** ☐ No ☒

(please refer to published guidelines)

C11. Assists/alters the process of conception in any way **Yes*** ☐ No ☒

C12. Involves methods of contraception **Yes*** ☐ No ☒

C13. Involves genetic engineering **Yes*** ☐ No ☒

*** If you have answered 'Yes' to any of the above please submit a full application to the Ethical Advisory Committee**

Section D: Observation/Recording

D1. Does the study involve observation and/or recording of participants?

Yes ☒ No ☐ **If No**, please go to Section E

If Yes,

D2. Will those being observed and/or recorded be informed that the observation and/or recording will take place? Yes ☒ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section E: Consent and Deception

E1. Will participants give informed consent freely?

Yes ☒ If **yes** please complete the **Informed Consent** section below.

No* ☐ *If **no**, please submit a full application to the Ethical Advisory Committee.

Note: where it is impractical to gain individual consent from every participant, it is acceptable to allow individual participants to "opt out" rather than "opt in".

Informed Consent

E2. Will participants be fully informed of the objectives of the investigation and all details disclosed (preferably at the start of the study but where this would interfere with the study, at the end)?

Yes ☒ **No*** ☐

E3. Will participants be fully informed of the use of the data collected (including, where applicable, any intellectual property arising from the research)?

Yes ☒ **No*** ☐

E4. For children under the age of 18 or participants who have impairment of understanding or communication:

- will consent be obtained (either in writing or by some other means)? Yes ☒ **No*** ☐ N/A ☐
- will consent be obtained from parents or other suitable person? Yes ☒ **No*** ☐ N/A ☐
- will they be informed that they have the right to withdraw regardless of parental/ guardian consent? Yes ☒ **No*** ☐ N/A ☐

E5. For investigations conducted in schools, will approval be gained in advance from the Head-teacher and/or the Director of Education of the appropriate Local Education Authority Yes ☒ **No*** ☐ N/A ☐

E6. For detained persons, members of the armed forces, employees, students and other persons judged to be under duress, will care be taken over gaining freely informed consent? Yes ☐ **No*** ☐ N/A ☒

*** Please submit a full application to the Ethical Advisory Committee**

Deception

E7. Does the study involve deception of participants (ie withholding of information or the misleading of – participants) which could potentially harm or exploit participants? Yes ☐ No ☒

If **No**, please go to Section F **If yes,**

E8. Is deception an unavoidable part of the study? Yes ☐ **No*** ☐

E9. Will participants be de-briefed and the true object of the research revealed at the earliest stage upon completion of the study? Yes ☐ **No*** ☐

E10. Has consideration been given on the way that participants will react to the withholding of information or deliberate deception? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section F: Withdrawal

F1. Will participants be informed of their right to withdraw from the investigation at any time and to require their own data to be destroyed? Yes ☒ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section G: Storage of Data and Confidentiality

Please see University guidance on Data Collection and Storage

G1. Will all information on participants be treated as confidential and not identifiable unless agreed otherwise in advance, and subject to the requirements of law? Yes ☒ **No*** ☐

G2. Will storage of data comply with the Data Protection Act 1998?

(Please refer to published guidelines) Yes ☒ **No*** ☐

G3. Will any video/audio recording of participants be kept in a secure place and not released for use by third parties? Yes☒ **No*** ☐

G4. Will video/audio recordings be destroyed within six years of the completion of the investigation? Yes☒ **No*** ☐

G5. Will full details regarding the storage and disposal of any human tissue samples be communicated to the participants? Yes ☐ **No*** ☐ N/A☒

*** Please submit a full application to the Ethical Advisory Committee**

Section H: Incentives

H1. Have incentives (other than those contractually agreed, salaries or basic expenses) been offered to the investigator to conduct the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

H2. Will incentives (other than basic expenses) be offered to potential participants as an inducement to participate in the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section I: Work Outside of the United Kingdom

G1. Is your research being conducted outside of the United Kingdom? Yes ☐ No ☒

If **Yes,** you may need additional insurance cover/clearance for your research.

If, having completed this checklist, you will be making a full application to the EAC this issue will be checked for you as a part of the process. If however you do not need to complete a full application please contact Hiten Patel (H.Patel@lboro.ac.uk).

Section I: Declarations

Checklist Application only:

If you have completed the checklist to the best of your knowledge without selecting an answer marked with an * or †, your investigation is deemed to conform with the ethical checkpoints and you do not need to seek

formal approval from the University's Ethical Advisory Committee. Please sign the declaration below, and lodge the completed checklist with your Head of Department or his/her nominee.

Declaration

I have read the University's Code of Practice on Investigations on Human Participants. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline. *Please sign below*

Checklist with additional information to the Committee:

If, upon completion of the checklist you have **ONLY** selected answers which require additional information to be submitted with this checklist (indicated by a †), please ensure that all the information is provided in detail and send this checklist to the Secretary to the EAC.

Full Application Needed:

If on completion of the checklist you have selected one or more answers which require the submission of a full proposal please download the relevant form from the Committee's web page.

A copy of this checklist, signed by your Head of Department should accompany the full submission to the Ethical Advisory Committee.

Signature of Responsible Investigator

Signature of Student (if appropriate) .....

Signature of Head of Department or his/her nominee

Date .....

Advice to Participants following the investigation

Investigators have a duty of care to participants.

When planning research, investigators should consider what, if any, arrangements are needed to inform participants (or those legally responsible for the participants) of any **health related (or other) problems previously unrecognised in the participant**. This is particularly important if it is believed that by not doing so the **participants well being is endangered**. Investigators should consider whether or not it is appropriate to recommend that participants (or those legally responsible for the participants) seek qualified professional advice, but should not offer this advice personally. Investigators should familiarise themselves with the guidelines of professional bodies associated with their research.

Research Proposal

ETHICAL ADVISORY COMMITTEE

RESEARCH PROPOSAL FOR HUMAN BIOLOGICAL OR PSYCHOLOGICAL AND SOCIOLOGICAL INVESTIGATIONS

1. Project Title Social comparison processes in physical education

2. Brief lay summary of the proposal for the benefit of non-expert members of the Committee. This should include the scientific reasons for the research, the background to it and the why the area is important.

Social comparison processes have become a major focus of educational psychology over the last few years (Marsh, 1983), with theories such as Big Fish Little Pond Effect (BFLPE) receiving much attention. BFLPE has received cross-cultural support and suggests that children may experience reductions in their self concept when placed in a high ability class because they make comparisons with the class average and this has a negative effect on their self perceptions.

Self concept research suggests that there are links between self concept and motivation and also self concept and health and well being. Given the importance of physical activity and health, it seems important that we continue to investigate areas such as self concept that may help us to better understand how to motivate individuals into pursuing more active lives. Self concept is now considered a multidimensional concept, with the physical self as one of the sub components of the overall self concept. Within the proposed study we wish to focus on the physical self in an attempt to understand if children who are high and low in ability have physical self concepts which reflect their ability levels.

In addition to this we want to understand if children only compare with the class average or if they use other frames of reference as well to form their perceptions about their competencies in physical education. In order to explore the possibilities that children compare with friends for example, two interviews will be carried out. The first to find out about the social comparisons made by the individuals and the second to clarify and find out the affective, behavioural and cognitive outcomes that these comparisons have on the individuals.

This study is different to those in the current literature because it allows us to look at comparison processes from the children's point of view and so far no qualitative studies have been conducted in this area. The aim is to interview children from years 6, 7, 9 and 11, selecting highly able and low ability pupils from each year group. Data collection will take place on two days a couple of weeks apart. On the first day of collection participants will be asked to complete a questionnaire and interviewed about who they compare with in physical education. Interview two will be used to follow up any questions that have arisen from transcribing the first interview and to assess the behavioural, cognitive and affective outcomes of the social comparisons that the participants spoke of in the first interview.

3. Details of responsible investigator (supervisor in case of student projects)

Title: Dr Forename: Christopher Surname: Spray Department: School of Sport, Exercise and Health Sciences Email Address:C.M.Spray@lboro.ac.uk

Personal experience of proposed procedures and/or methodologies**.** 12 years experience conducting research using proposed methodologies and procedures. Significant experience conducting research with young people.

4. Names, experience, department and email addresses of additional investigators

Miss Jemima Barnes, School of Sport, Exercise and Health Sciences, J.S.Barnes@lboro.ac.uk , 1 year of personal experience of proposed research methods.

5. Proposed start and finish date and duration of project

Start date: Late February 2010 Finish date: July 2010 Duration: 5 months
Start date for data-collection: End of February 2010
NB. Data collection should not commence before EAC approval is granted.

6. Location(s) of project Primary and secondary schools within Leicestershire and Surrey.

7. Reasons for undertaking the study (eg contract, student research) PhD student research

8. Do any of the investigators stand to gain from a particular conclusion of the research project? No.

9a. Is the project being sponsored? **Yes** ☐ **No** ☒

If Yes, please state source of funds including contact name and address

9b. Is the project covered by the sponsors insurance? **Yes** ☐ **No** ☒

If No, please confirm details of alternative cover (eg University cover). University cover

10. Aims and objectives of project

To assess social comparison processes within physical education classes and the affective, behavioural and cognitive outcomes of these comparisons.

Objectives:

- To determine which individuals or groups of people children aged 10-18 use as comparison targets against which to compare and or contrast their abilities and competencies within physical education.
- To find out what the motives are behind the comparisons that the children make during physical education – are these to help skill development or just to compare ability level?
- To identify if there is a relationship between ability level and physical self concept scores.
- To find out the affective, behavioural and cognitive outcomes identified by the children themselves.
- To investigate some of the questions surrounding the BFLPE, such as the importance of grades as a tool for social comparison.

11a. Brief outline of project design and methodology

(It should be clear what each participant will have to do, how many times and in what order.)

Participants will be asked to complete an adapted version of the Physical Self-Description Questionnaire. They will then be asked to take part in 2 interviews. These will be carried out by the research student. The first interview will require participants to answer a series of questions about their experiences within PE and with whom they compare and why. The second interview will be used to clarify responses given in the 1st interview and also to ask participants about the cognitive, behavioural and affective outcomes of the comparisons that they make within physical education.

11b. Measurements to be taken

(Please give details of all of the measurements and samples to be taken from each participant.)

Participants will be asked to complete an adapted version of the Physical Self-Description Questionnaire. In addition we will carry out two interviews with the participants. The first interview, lasting up to an hour, will enable us to assess which frames of reference children use, if anyone to compare with in physical education. The frames of reference will be school or year group, PE class, individuals or groups within PE class, others (friends, siblings, team mates, opponents) outside the PE class, internal comparison – PE achievement over last year, internal comparison – achievement compared with other subjects.

Each frame of reference will be taken one at a time and if respondents say that they do compare with that group then the interview will ask them further about that particular frame of reference in the following way: The interview will ask the participants why they compare with this person and/or people in order that we can understand the motives (enhancement/protection/improvement/verification) behind the comparisons.

Once these have been identified, the participants will then be asked what they compare (for example effort, technical aspects or grades). After this the pupils will be asked when they make these comparisons, is it within the physical education lesson or outside of the lesson. Finally the participants will be asked how they compare with the particular frame of reference and whether they make the same comparisons when playing different sports.

The second interview will again use the frames of reference as a basis, but only focus on those that the participant spoke of in the first interview. Going through each frame of reference identified as important by the participant, questions will be asked about how the comparisons make them feel about their competencies in physical education. In addition to this participants will be asked whether the pupils believe the comparisons affect their performance, persistence or effort and also if once they have made the comparisons how they feel, for example anxious, envious or happy.

12. Please indicate whether the proposed study:

Involves taking bodily samples Yes ☐ No ☒
Involves procedures which are physically invasive (including the collection of body secretions by physically invasive methods) Yes ☐ No ☒
Is designed to be challenging (physically or psychologically in any way), or involves procedures which are likely to cause physical, psychological, social or emotional distress to participants Yes ☐ No ☒
Involves intake of compounds additional to daily diet, or other dietary manipulation / supplementation Yes ☐ No ☒
Involves pharmaceutical drugs (please refer to published guidelines) Yes ☐ No ☒
Involves testing new equipment Yes ☐ No ☒
Involves procedures which may cause embarrassment to participants Yes ☐ No ☒
Involves collection of personal and/or potentially sensitive data Yes ☐ No ☒
Involves use of radiation (Please refer to published guidelines. Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays) Yes ☐ No ☒
Involves use of hazardous materials (please refer to published guidelines) Yes ☐ No ☒
Assists/alters the process of conception in any way Yes ☐ No ☒
Involves methods of contraception Yes ☐ No ☒
Involves genetic engineering Yes ☐ No ☒
If Yes, please give specific details of the procedures to be used and arrangements to deal with adverse effects.

13. Participant Information

Number of participants to be recruited: 20-25
Details of participants (gender, age, special interests etc):
Male and Female pupils aged between 10 and 18.
How will participants be selected? Please outline inclusion/exclusion criteria to be used:
2-3 schools will be recruited to be part of the study. Children within year groups of various abilities will be identified for potential inclusion with the help of PE teachers.

How will participants be recruited and approached? Letters will be written to head teachers at a number of schools within Leicestershire and Surrey. If the school agrees for their pupils to take part, then the researchers will ask the school to distribute letters to all selected children to take home to their parents with a returnable opt out slip. PE teachers will be asked to identify potentially suitable children.

Please state demand on participants' time. 20-30 minutes to answer the questionnaire (adapted Physical Self-Description Questionnaire). 2 maximum one hour interviews (interview schedules attached)

14. Control Participants. Will control participants be used? Yes ☐ No ☒

15. Procedures for chaperoning and supervision of participants during the investigation

The interviews will be carried out in a quiet area adjacent to a public area within the schools, where people can walk past at any time. If a room is provided then the door will be left open at all times. In addition, the researcher conducting the interviews has had an enhanced CRB check carried out.

16. Possible risks, discomforts and/or distress to participants None

17. Details of any payments to be made to the participants None

18. Is written consent to be obtained from participants? Yes ☒ No ☐
If yes, please attach a copy of the consent form to be used. **If no,** please justify.

19. Will any of the participants be from one of the following vulnerable groups?

Children under 18 years of age Yes ☒ No ☐
People over 65 years of age Yes ☐ No ☒
People with mental illness Yes ☐ No ☒

Prisoners/other detained persons Yes ☐ No ☒
Other vulnerable groups (please specify) Yes ☐ No ☒

If Yes, to any of the above, please answer the following questions:
What special arrangements have been made to deal with the issues of consent?
Consent is being sought from Headteachers of schools. When this has been obtained, parents will then be sent an opt out letter which, if returned will exclude their child from taking part. Parents will have 2 weeks to return this form, otherwise consent will be assumed. After this children will then also be given a willingness to participate form to sign and also verbally told at the start of the study that they can withdraw from the study at any time they choose.

Have investigators obtained necessary police registration/clearance? (please provide details or indicate the reasons why this is not applicable to your study)
Both investigators have undergone an enhanced CRB disclosure through Loughborough University.

20. How will participants be informed of their right to withdraw from the study?

Through the willingness to participate form and also verbally before the study begins.

21. Will the investigation include the use of any of the following?

Observation of participants Yes ☐ No ☒
Audio recording Yes ☒ No ☐
Video recording Yes ☐ No ☒

If Yes, to any, please provide detail of how the recording will be stored, when the recordings will be destroyed and how confidentiality of data will be ensured?

The data will be recorded on a hand held dictaphone. Two copies of the recordings will, then be made, one on a CD as a backup file and the other downloaded onto the researcher's computer for transcribing. To ensure confidentiality, pseudonyms will be used in the transcripts. The recordings and transcriptions will be destroyed in 10 years time in keeping with data protection policies. Only the PhD student and her supervisor will have access to the raw data files.

22. What steps will be taken to safeguard anonymity of participants/confidentiality of personal data?
Pseudonyms will be chosen for each participant and each school will be given a number. After the second interview it will be possible to delete the information which links a participant to their pseudonym.

23. Please give details of what steps have been taken to ensure that the collection and storage of data complies with the Data Protection Act 1998?

Please see University guidance on Data Collection and Storage **and** Compliance with the Data Protection Act**.**

Data will be stored for 10 years in keeping with the University guidance section 2. Clear and accurate reports of procedures followed will be kept to demonstrate that proper research practice has been followed. All participants will be informed in written and verbal formats of their right to withdraw at any time during the study even after data collection has concluded. Participants will be provided with information on who owns the data, how it will be stored, who will have access to it, length of time it will be stored for, what it will be used for and who will own the final results of the research.
Results of the questionnaire will not be reported at a school or individual level.
If an individual decides that they wish their data to be removed from the study then this will be done.

24. If human tissue samples are to be taken, please give details of and timeframe for the disposal of the tissue.

Please note that this information should also be outlined on the Participant Information Sheet. N/A

24. Insurance Cover

It is the responsibility of investigators to ensure that there is appropriate insurance cover for the procedure/technique.

The University maintains in force a Public Liability Policy, which indemnifies it against its legal liability for **accidental** injury to persons (other than its employees) and for accidental damage to the property of others. Any **unavoidable** injury or damage therefore falls outside the scope of the policy.

Will any part of the investigation result in **unavoidable** injury or damage to participants or property?

Yes ☐ No ☒

If Yes, please detail the alternative insurance cover arrangements and attach supporting documentation to this form.

The University Insurance relates to claims arising out of all **normal** activities of the University, but Insurers require to be notified of anything of an unusual nature

Is the investigation classed as **normal** activity? Yes ☒ No ☐

If No, please check with the University Insurers that the policy will cover the activity. If the activity falls outside the scope of the policy, please detail alternative insurance cover arrangements and attach supporting documentation to this form.

25. Declaration

I have read the University's Code of Practice on Investigations on Human Participants and have completed this application. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline.

I agree to provide the Ethical Advisory Committee with appropriate feedback upon completion of my investigation.

Signature of applicant

Signature of Head of Department: .....

Date .....

Appendix G

Study 1 – Headteacher Letter

Loughborough University
School of Sport, Exercise and Health Sciences
Loughborough
Leicestershire
LE11 3TU

Date

Dear Headteacher,

I am a PhD research student at Loughborough University interested in understanding how children develop perceptions about their competencies in physical education. Research so far suggests that social comparison processes are extremely influential. Given the role that physical education can play in promoting children's physical activity and health, my supervisor, Dr Christopher Spray and I, would like to understand further the negative and positive effects of social comparison within physical education.

In order to do this we will ask physical education teachers to identify pupils from year groups 7, 9 and 11. Those selected to take part will be asked to complete a short (30 minute) questionnaire and to take part in two interviews. The first interview will allow us to identify what comparisons the pupils make and the second which would ideally take place a few weeks later, to then ask them what effect if any the pupils believe these comparisons have on their thoughts, feelings and behaviour.

Please email me at the address below if you will allow students at your school to take part in the research, however, if you would like more information before making a decision then please contact my supervisor or I. Informed consent would be necessary from parents and no pupil would be obliged to take part. I also have undergone Enhanced Disclosure with the Criminal Records Bureau. If you did allow pupils from your school to take part, then neither the school nor any individual would be identifiable in any publications arising from the research findings.

If you have any queries please do not hesitate to contact me.

Yours faithfully,

Jemima Barnes MSc

J.S.Barnes@lboro.ac.uk
01509 228450

Dr Christopher Spray
C.M.Spray@lboro.ac.uk
01509 226339

Appendix H

Study 1 – Parental opt-out letter

Loughborough University
School of Sport, Exercise and Health Sciences
Loughborough
Leicestershire
LE11 3TU
Date

Dear Parent/Carer,

I am a research student at Loughborough University who is interested in understanding how children develop their perceptions about their abilities in physical education. The Headteacher of your child's school has given permission to conduct my study within the Physical Education department. However, in line with Loughborough University procedures that safeguard good practice, I would also like to ask for your permission for your child to participate in my study.

The aim of the study is to understand with whom children compare in their physical education classes and what effect these comparisons have on their perceptions of their own abilities in physical education. Your child will be asked to complete a short questionnaire and then asked to take part in an interview. To enable us to clarify your child's responses, so that we make sure that we understand exactly what your child has told us, we will then follow up with a further interview a couple of weeks later.

All information collected will be treated confidentially and neither your child nor the school will be identifiable by name in any publication which may arise from the research.

Please complete the slip below and ask your son/daughter to return this letter to the PE staff at the school if you **do not** give permission for your son/daughter to participate in the research. Please ensure you return the letter **within 2 weeks**, otherwise it will be assumed that you give your consent. If you would like any further information about the study, then please contact either my supervisor Dr Christopher Spray or I at either of the email addresses below.

Yours faithfully,

Jemima Barnes
J.S.Barnes@lboro.ac.uk

Dr Christopher Spray
C.M.Spray@lboro.ac.uk

I **do not** give permission for _____ Form Group____ to take part in the research being conducted at _____

Signed _____
(Parent/Carer)

Appendix I

Study 1 – Participant Information Sheet

Social Comparison Processes in Physical Education
Participant Information Sheet

Supervisor:
Dr Christopher Spray
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. C.M.Spray@lboro.ac.uk, 01509 226339

Main investigator:
Miss Jemima Barnes
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. J.S.Barnes@lboro.ac.uk, 01509 228450

We are researchers from Loughborough University who are interested in learning about children's experiences in physical education. We would like to find out who you compare with in physical education lessons if anyone, and how you feel once you have compared yourself with these people.

In order to find out about your experiences, we have a questionnaire for you to answer, which will take approximately 30 minutes and we would then like to ask you some questions about your experiences in PE which may take up to an hour. As part of this study we would also like to interview you again in a few weeks time to help us to learn as much as we can from you about your experiences in PE and this will also take up to an hour. So that we can make sure we don't miss anything you say, the interviews will be recorded and then transcribed by the main investigator.

Jemima will be present throughout the process so you can ask her any questions you have about the study at any time. She is carrying out this study as part of her studies at University and this project is funded by Loughborough University. As the project is funded by Loughborough University, they own the data collected and also the final results of the project.

You will be asked to provide your date of birth, tutor group and year group.
Any information that you give will be treated confidentially and will only be heard by the main investigator and **will not** be seen or heard by your teachers. The questionnaire answers will be kept for 6 years and the interview recordings and transcriptions will be kept for 10 years. The results of the study will be written up as a paper for publication in a journal and as part of a research project. When the study is written up neither you nor your school will be identifiable by name.

Once I take part, can I change my mind?
Yes! After you have read this information and asked any questions you may have we will ask you to complete a Willingness to Participate Form, however, if at any time before, during or after the sessions you wish to withdraw from the study please just contact the main investigator. You can withdraw at any time, for any reason and you will not be asked to explain your reasons for withdrawing.

I have some more questions who should I contact?
Please email Dr Christopher Spray, or Jemima Barnes with any questions that you have.

If after the study has been conducted you are not happy with the way the study was conducted then you can visit: http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm.

Appendix J

Study 1 – Willingness to Participate Form

A study of children's social comparison processes in physical education

We are researchers from Loughborough University who are interested in learning about children's experiences in physical education. In order to find out about your experiences, we have put together a questionnaire which will take approximately 30 minutes to complete and we would then like to ask you some questions about your experiences in PE which may take up to an hour. As part of this study we would also like to interview you again in a few weeks time, to help us to learn as much as we can about your experiences in PE.

You **do not** have to fill out the questionnaire or take part in either of the interviews and no one will mind if you do not want to take part in the study. Any information that you give will be confidential and will not be seen or heard by your teachers. If you have any questions, please feel free to ask them now, or at any time during the study. If you would like to take part in this study then please read the information below, fill in your name and sign in the space provided.

WILLINGNESS TO TAKE PART

1. The purpose of this study has been explained to me.
2. I have read and understood the information above.
3. I have been able to ask any questions that I had.
4. I understand that it is my choice to take part in this study.
5. I understand that I have the right to drop out from this study at any stage without giving a reason.
6. I understand that all the information I provide will be treated in strict confidence.
7. I agree to take part in this study.

Your name _____

Your signature _____

Signature of Investigator _____

Date _____

Appendix K

Study 1 – Example Interview Transcript – Interview 1 Participant 23

(Interviewer is denoted by bold text)

I'm going with friends I'm going **oh cool it's all sorted then?** yeah **so is that over the weekend or is that just next week?** just next week really sleep over and stuff **oh cool is it someone's birthday or something?** it's my friends **okay, how old are they going to be?** 14 **cool so it's your last year?** yeah **has it gone quickly?** yeah really quickly yeah **does it seem strange being the top year to school when you are in year seven at the bottom and you've got like the next half of term then it's finished?** It's strange yeah yeah **and are you going to (X high school) afterwards?** yeah **okay cool, so are you doing anything like sporty stuff these over the holiday do you think?** er yeah that I have to go and do like dance class every day **okay** so that's on a Saturday, I do that for seven hours, **seven hours** yeah and then on Monday for four and then sometimes we have to go on Thursdays as well okay **so it is normally during the week?** yeah **okay** er it's every week on Saturday and Monday and sometimes we have other lessons, like holidays, **so what sort of dancing is it?** um, we do ballet, tap, modern, stamina and conditioning, acro, and stage sort of thing **so you love dancing then?** Yeah **how did you get into it?** Um, well I started when I was like two, and then er, cause the dance school that I was at like broke up and I didn't go there as much, and then when I was about nine I moved to another one and we did loads there **oh cool, so what grade are you? Or are you above all the grades now?** um, no I'm at grade 5, six sort of thing **oh okay and are you taking an exam soon or?** er taking it in October for ballet and modern **are you excited about it?** no (laughs) **no?** I'm nervous **you'll get lots of practice in May before it** yeah **okay so do, you do for hours on and Monday evening after school?** yeah **wow a long day on Monday then?** yeah **so Sunday, is that your day off is it from school and everything?** Yeah **cool all right so, do you do dance at school as well or is it just something you do outside of school?** um no, we don't do dance at school, we just do like athletics, um, tennis, netball, sometimes volleyball and basketball, and hockey and football and that sort of thing, so we do quite a lot, **yeah big variation of stuff** yeah **and what, do you have a favourite of all the sports you do at school?** um, I like hockey and javelin **okay** they're my favourites **and why do you like them then?** Coz, I don't know, it's like I like throwing stuff,(laughs) and hockey is quite good cause, I don't know, I don't know, why I just, like it **okay um, like whacking the ball?**(laughs) yeah, **so did you play hockey before you came to (School Name)?** Um, sort of, we did it, I went, at troops for a bit and then I stopped, and then I did it in year six at primary school and, we do loads more here than I did **where did you say you did, you'd played at? (Place name)**, **where's that is that a club?** yeah it was like for under 10s **OK so you went to hockey club** yeah **okay alright then and do you enjoy PE at school?** Um, yeah, yeah, it's it's one of my favourite, but sometimes, you do stuff like that football I don't like **why don't you like football?** I just don't like it, it is, I don't know, I'm not very good at kicking the ball, and it scares me **yeah I know that feeling when it goes up in the air and everyone says it's on your head and is like no** (laughs) yeah **oh okay and what's your favourite one?** Um, er I like netball **yeah?** yeah **Why do you like netball?** Um, I dunno, cause it's, it's sort of easier, to keep track of the ball, and is easier to like mark people as well, so it is easier to get it off them **okay alright, and um, do you know sort of how good you are within your PE class you think?** um, sort of yeah, **do you, do you think you like, can you tell me where you think you are in your PE class?** um, just sort of average, coz there's quite a few people who are a lot better than me at PE, **okay and there is also some people that worse than you as well?** Yeah **and when, when you think about your PE class, are you thinking about, you have games don't you, or do you have three, three PE lessons that week?** um, yeah, now I have two,

because we do German as well, most people have three, but some do, because they do German **okay so do you have like a games lessons indoor or outdoor games lessons?** usually we do indoor and outdoor, **okay** but in the summer everything is out door and you have one athletics lesson and a tennis lesson and in athletics, you do javelin, running, discus, that sort of thing and you **you like javelin** yeah and you go through all of them in athletics **OK so you do like one a week?** yeah **okay and that lasts for the whole of the summer term does it?** Yeah **okay cool, um so would you say, so are you with the same people in those lessons?** Um, yeah, yeah, I think so, sometimes, we do classes, with boys, but that's not very often, I think that's sometimes in the winter **okay and do you prefer doing just classes with girls, or do you prefer doing having mixed lessons?** just girls, coz it's embarrassing sometimes with boys **what is, is it embarrassing if you're good or if you're not good?** if you're bad, if you're really bad at PE, embarrassing and if you're like can't do something, coz boys, can do like, they pick stuff up quicker, and then if I'm rubbish at it I get embarrassed **okay and you say they pick up stuff quicker, how do you know they pick up quicker?** because like football and stuff, boys are like always playing and that and then they, have loads of practice because they always go football and stuff, and then went girls play with them there like, well not just girls generally, coz most girls play it, but some girls, if you don't do football, then you're embarrassing, well I am, if you play with boys **okay is that because you find it quite hard to kick the ball?** Yeah **okay do you think if you were better at it you would feel as embarrassed?** um, know I wouldn't because if I was better at sports I feel more confident in doing it, coz, I know that, I'd be able to do it, if that makes sense **a okay so if maybe you did dance at school** yeah **then you'd feel confident** to yeah **doing it, so generally you're not very confident with your sports ability** no, not really **why do you think that is?** um, because, I don't really do much more sport other than dancing, because at home I don't play football and stuff, but I do dance, because I have to practice it, and we go on the trampoline, but we don't do that here, so I don't really have much more practice in any of the other sports, and we don't do dance here **so you think the practice is the thing that builds confidence?** Yeah **okay um, so, you say that you're probably about the average in your class** yeah **what sort of information do you use to sort of come to that conclusion?** Because we get like levels and if there is like, they give you a chart and it has like average, above average, slightly below and stuff and usually I get like in average, and, usually when I do like gymnastics and things inside, then I get above average in gymnastics, but not really anything else **okay** I sometimes get it in hockey, but that's rarely **okay so when you say like they tell you where you are, through the average stuff, do you compare those grades to your friends or is it very personal?** yeah, you sort of like ask your friends what you've got and then they like, you tell each other and sometimes they get better than you and then you like oh, laughs, and then if you have worse than everybody else, you sort of want to keep it to yourself more, coz you like feel like you're rubbish at it **okay, so when you say you don't do very well, do you mean when you get average?** um when I get, when I get below average, then I feel like I'm not doing very good **okay have you ever got below-average?** yeah in football (laughs) coz I don't know it's just, if I don't feel like I'm very good at it then I don't really like, put as much effort into it, because then, then you feel like you're rubbish at it anyway, so what's the point, that's how I feel when I do football **oh okay and do you think that they getting the below average grades just confirms it to you?** Yeah **great** yeah that's how I feel **okay, so when you do get your grades back then, does your whole class sort of talk about them or is it just within your friends?** It's more within friends coz, if, there's like people in the class that you don't really talk to that match, then you don't, it's sort of like, um, a topic of conversation that you like, have with your friends, you don't sort of go round to everybody and ask it's just like, one or two people **okay, so, but, the main thing that tells you how good you are is this, what you get on your?** levels yeah **okay so until you get your levels, so just while you're like, because I don't imagine you get levels every lesson do you?** no **so just like at the moment while you're doing like athletics and while you're doing tennis, what sort of**

information do you use to work out how good you are within those sports do you think? um, say, if we do, javelin or something and you throw it further than everyone else then you feel like, you're doing it better, but if you get, like behind everybody else, then, it is the same as sort of all the sports, if you like if you feel like you're doing worse than everybody else cause you're not playing it as well as them then you feel like you're doing a bad sort of, you feel like you're genna get a bad level, but sometimes you don't because they sometimes based it on effort, and like how much effort is put in **okay so is that what you aim to get them, a good level? Is that what you want, is that the aim of PE?** Yeah, coz then, you feel like you've tried really hard, and you've done well **and so which one do you do best in a?** Um, gymnastics probably, or hockey I'd say **okay so do you think the fact that you get a better level makes you try harder like that next time when you do this for because you're like, I'd done well?** yeah and it's the sports that you're better at that you tend to get higher levels in, because the other one you don't tend to have that much practice in, and then when you try it, everybody else practice like really good, and then you're just not very good **when you're in your PE lessons and you're doing the sports that you're not very good at, that you think you're not very good at so I don't know, but maybe football?** football and running and stuff like that **okay, in terms of like, just like like a team game like football, you ever feel that people exclude you like they don't pass the ball because they think that you're not very good?** Yeah, because if they, if you get in their team and then you have to work out the spaces, they always like, people who are better than you, they put you in defence or something, and then they just play up front, so that you're just standing around all the time, coz then they think that if they pass it to you that you'll like lose it, so people who are better, don't really like include you, they sort of go ahead and do what they want **and how does that make you feel?** um, like, the that they don't really want you on the team, and that you're sort of a liability, if they're playing football and they're all playing it, and then the teacher tells you to get involved, and then you try and get involved, they just ignore you, and then that makes you feel worse, because then you feel like everybody knows that you're not good at it, **okay, okay some other people have said that as well that was asking you,** yeah **okay, so, um are you ever picked the demonstrations in PE?** Um, sometimes, in swimming, when we doing diving and stuff cause I like that, but not really in anything else **okay and how does it feel when your picked for demonstration?** um not really that bad, because sometimes in, in tennis and stuff she just picks random people to demonstrate even if they're not good at it **okay** and she just goes round and says can I borrow you do for a demonstration and stuff, and she doesn't really pick of the good ones , she just picks anybody, **okay so you will get a chance to do the demonstration?** yeah **do you think that's quite nice?** Yeah, it's its coz, you feel like, she's sort of taken notice of me, the PE teacher **okay and your friends aren't ever like mean to you when you're picked for demonstration?** no no **less supportive of you?** No, they are like supportive, coz sometimes, if it is a team game they get picked with you say then you have to like, play, the game with them, but when you do a demonstration, ow, I just cracked my finger, you don't really hear them coz they are like watching and stuff, nobody really said anything, when you're demonstrating **um, all right, so going back a bit more to just your general like PE and stuff, do you think you compare yourself with your PE group as a whole?** Yeah **can you explain that?** Of course, you're sort of, compare yourself to the good ones think oh I'm rubbish, because then people are better at it than you, then you feel like you're not very good, even though they might be like exceptionally good, still feel like you're not as good as them so you're rubbish **okay** well that's how I feel **okay, and so like from, how does that make you feel like emotionally and about yourself from, does that affect how you feel about yourself?** in that what's, you feel like, your confidence goes down in that particular sport, so then you think that you're not good at it, don't play, and then if there's people who are better at you at it, in the sport, then you feel that they won't want you on their team, and even if you are on their team, they just leave you out, so it sort of makes you feel worse it, in your confidence, it sort of knocks it a bit, coz then you feel like

they don't really want you to play with them and stuff **okay that's a really good example, and what about your behaviour, does that change,? by that I mean do you think it changes how much you concentrate how much effort you put in and things like that?**u m, if it was like people that you're friends with and you sort of mess around with them at break, then some times in lessons, you sort of like mess around, if you're with, your friends and stuff then, you don't get as much practice as you should, and sometimes, you don't listen to examples, and then you don't, you're not very good at it, and, like, your behaviour, if you're not very good at the sport, I don't put as much effort in cause, I don't see the point, if I'm rubbish at it anyway **okay** coz then, you just I don't know, you just don't feel like there's any point in any **okay why do you feel like there's no point?** because if you're rubbish, then nobody really, I feel like nobody like sort of wants me to play with them if I'm rubbish, so then you just sort of stay in the background and just play with the mass, rather than going sort of playing and tackling and stuff, you just sort of stay at the back **okay, surely sometimes being a defender is quite a big thing?** Yeah, if the, like the other team's really good, and you're defender then, you have to sort of like, try, and if you lose the ball, then sometimes people like, who don't really know you, sort of blame you for the team losing in the end or something, and that makes you feel bad, because then you feel a bit all your fault **it's not all your fault** yeah **so, are you talking now all about football, or is there other sports this happens in as well do you think?** um, it happens in netball and sometimes hockey stuff, it's sort of team games that that happens, coz if you're on your own in javelin and that, then you can't really blame yourself losing coz it is just you that's lost, sort of, but most of them aren't that competitive cause, I don't know, you don't really compare it, and coz, if you get like, everybody usually gets like the same, and then somebody in javelin always gets further, and then you don't really feel bad because everybody's got the same, and there's only a couple of people who are better **okay, and what about the running, compare yourself in that do you think?** Yeah, coz if you're like the only person who's behind them all, then you feel like, you have to speed up, and then if you do a cross-country run and you get out of breath, and then you're behind everybody, and if you're slow, then you feel like, cause when we do sprint sort of like a race, and then if you lose a race, you feel bad like, because you can't run very fast, and you compare yourself with the best runners and then you feel worse about it, **okay when you do like running races, do you come last or are there still people that behind you?** um, I usually come like third last, there's only like two people behind me, because I'm not that fast at running **okay** and there's always loads of people in front of me **and two that are behind you, is it always the same two?** er, yeah, sort of, there's always jus, just, two people that aren't like good at sports, but sometimes in sports they're like better than me, because they have particular sports that they're like good in, and some that they're not good in **ah, okay, but running is just one of the things they're not good at?** yeah **okay, and because the only thing I was going to ask you is do you, running specifically, do you ever, not that you say out loud ha ha I beat you that's not what I mean, do you ever think in your head like when all those other people have beaten you oh but I still beat?** yeah, yeah, because then, you sort of make yourself feel better, if you say well I wasn't last, but I don't know, because if I was last then I'd feel worse, because I wouldn't beaten anybody **okay and does that ever happen?** um, not really **okay** sometimes, if, if, coz there's sort of groups and if everybody in your group's really good at running, when they like, all run and you're behind them all you feel like oh dear, and you sort of slow down, because I dunno, or you speed up, and like overtake them, and then you end up falling over **has that happened to you?** yeah **how far were you running when that happened?** um, this sprint, and then they in front of me so I tried to run and I tripped over my shoe **oh dear** (laughing) **oh, was that recently that happened?** yeah **ah,** um, two weeks ago **was that just when you were with the girls then?** yeah **okay** it would be more embarrassing, if I was with boys, coz then you look like a bit of a, I dunno, sort of, I dunno, look like a bit of a fool, **okay, fair enough, but they were there** no **fair enough, and, so we're talking about like your speed and staff, so that's kind of like an outcome how fast**

and stuff, is there anything else that you compare like techniques is the that people do, or skills? Yeah, coz in hockey, there's loads of different sorts of things do, and some people like, the Indian one, where you go either side, some people **is this the hockey move?** Yeah **okay it's a hockey move** yeah, and then, if people can do that, that's sort of like advance, and then you try and sort of, get the hang of it, but if you can't do it then you feel bad, because if they, can all do it, then you think though they really did, and I'm rubbish, so then you try and sort of advance your skill, and then it doesn't really work out, and you end up like, feeling a bit worse because, they have like those of techniques that they can do and stuff, and you can't, so you sort of compare yourself to them **okay does that happen during the lesson, or do you think about it during the lesson or after the lesson or when do you you think about it?** um, I think about it during, because after, you just, I dunno. I just forget about it after, but during you feel bad, because they're there, doing it, and you can't say then you feel worse then I think. **When you say you feel worse, what do you mean? does it make you feel like, sad and happy and depressed, or does it make you feel a bit, jealous of them that they're better than you, can you describe it to me?** um, a bit jealous, but it doesn't really really get me down, it just sort of knocks my confidence a bit, because then, you think you have to be as good as them, if you want to be good at that sport **okay** it, it sort of makes me feel, sad, but not really really sad, just sort of shame it's, well not really a shame it's, but like a bit worse in that sport, and then it makes you not like it as much, because people are better than you **okay so what do you think you'd prefer then in a sport you aren't good at?** Um, if everybody was sort of the same as me, because then you'd feel more like, everybody is the same, so so then there wouldn't be people that you compare yourselves to, and if, you're worse than everybody like, like everybody, then you would feel like you're bad at that sport, and you might enjoy it more, because you wouldn't be comparing yourself **okay because you don't have sets do you?** um, no, no not really **I didn't think you did, okay, those are really good examples by the way, so thank you, um, so, that's like within your PE class, you feel like that, do you have a general idea of where you are within your whole year as well?** um, do you mean like, sort of doing well sort of thing **yeah sort of way and are in ability wise?** um, **I mean I don't know, are you in (X side of year or Y side),** X side, **I mean, and what I gather you don't really see (Y side) at all,** no, you're not with them in anything, you only ever see them at like break and stuff **you compare yourself terms of like you, with their like the whole of X side?** Yeah because, you, in say athletics, she says that there is record set, and then if, you hear from people that somebody is really good at Javelin, then you feel like, you have to be better than them, and then you try, 'nd like do better at, because even if you don't know them, then you still feel like you wish you were as good as them **okay** sort of thing **okay, so these records that are set, is it, is it more specific to something like athletics where you've got times and stuff do you think?** Yeah **do you think, does that happen with other sports as well, do you hear of it oh such and such is good at football or something** yeah, coz when you're with your friends and you're talking about PE, and, somebody says oh they're really good hockey, then you feel like I don't wanna play them, if you, if they're in your set as well, then you say to people, that, they really did tsick, then they're like oh yeah I heard that, and then it sort of gets around that they're good, and then you feel worse because, you wish, they were talking about you being good at it **okay but is everyone know that you're very good at dance?** no, coz, don't really, I don't really have a say in school, because, it, doesn't really come up, my friends know, like my closest friends, but not everybody does, because, like, it doesn't really come up because we don't have dance, so it doesn't really matter, **okay when you say you like wish everyone would say that you're really good, why, why do you think that?** Because then you, sort of everybody'd be like to be on my team and stuff, and then you get to picked for the team before, rather than being left 'till last, and then you have to like, somebody has to pick you, but you'd rather be picked first, I say that you know that, people think that you're good, then **okay so that would be nice for other people to think that you're good?** yeah **how do you think that would make you feel if like other people**

thought you were good? it would make me feel like more confident in, because if people thought you were good, then they compare themselves to you, and that it sort of makes you feel confident, you know better than everybody else, so whatever sport it is, you're good at it that would make me feel more confident **okay, and just going back to everyone in your year group, as a whole do you ever think about how good you are in the year group?** um, yeah, because there is, we have sports day, and then if you ever get like, nominated to race, or something, then if you're racing against every form in your year, then if you like third last, then you feel like you've let everybody down, so nobody really goes up the sports day, because they don't want to let everybody down, and if it is say Javelin, where people know that they're good at it, then everybody like, thinks they're good, goes for it, and people who, thought they are good, but don't say anything, they don't really get to like do it, **so that would be like you, you don't get to do javelin at sports day?** No, coz, there's always people who are better than me at Javelin, and still, and even though I think I'd pretty well, I'd rather have them representing me, because then, you get more points as a form, and even though they're probably better at football or something, and they're good at Javelin too, you're probably as good as them, you just don't have much confidence in PE as a whole, so you don't put yourself forward for it, and you let them do it instead **okay, so, do you think you would actually quite like to do things like sports day?** Yeah, coz, in yeah 7 I did the 200 m and I came fourth last, yeah, and, I felt like, I'd let everybody down, even though people were behind me, and, in the like, other sports, all our form were doing well, and I felt like I'd like brought them down and stuff, and if we didn't win, then I thought it would be my fault and stuff like that **did anyone say it was your fault? Or was it just you thinking that?** it was just me, like, people said oh she did that really well and stuff, unless they think that they're better than you and they should have done it, then they're not so supportive, but everybody is so supportive about it, they like, and you feel better about my losing, sort of **I think everyone loses too** yeah **okay so you think, in sports day, so sports day, that helps you to work out sort of where you are in your year group, do you mean when you say your group, do mean just the girls would you mean girls and boys?** um, I sort of think just the girls, because if, you don't really know where the boys are, they have separate from the groups, then if somebody says they're good at football, you wouldn't really know, because you haven't really played with them **okay** and then you don't compare yourself to them because, they're in the other half right, not half like, but boys, so you don't compare yourself to them, you compare yourself to girls who are better at it and stuff **okay, so it's just the girls you would know where you are within the year group** yeah **and would that be Y side or as well as X side** um, not really well, it would be X side, you'd see them play them, but Y side don't see them play, if somebody says they're good at football, then you think to yeah, but they're really be somebody better at football in X side, because if you think somebody is good, in X side, but you've never seen a person from Y side play, then you think the person from X side is better **you think the person from X is better?** you've never seen them play, so you compare them to X side for, **oh okay for sports day, that's just x side do sports day on their own?** Yeah yeah, **and do you always do sports day on their own?** I think so, I can't remember **it must be coming up again this year isn't it?** Yeah, it's in the last week, on the Monday I think **so you going to do anything this year?** um, probably not **um, right, that's your year group as a whole, and how about just people outside of your PE class?** um, well, outside of PE, we don't really play sports, apart from inter form, because then your forms all compete in inter form sport, and it's usually like a game like cricket, and then, you play against Y side sometimes, but, in inter form, it is, people don't really put themselves up, if they don't think they're good, because then they don't want to let the form down, but that's the only time you really get to see Y side play, and then, I dunno if I'm good, coz I never usually play inter form, because, I don't think I'm very good at PE, so I don't want to let the form down, so I let the people who are better at it, do, all the inter form, **so would you quite like to do inter form then do you think?** um, well yeah, probably, but, I'd like to do it, but I wouldn't want everybody to think badly of me if I didn't do very

good, so I wouldn't want to, like let everybody down **so a lot of it to do them like almost a reputation within like the form?** yeah, **okay** because then if you did badly, people would be like, because it's competitive, then the, if we like lost, it would be like arguing they are better at that and stuff, because if you like lost the ball, and we lost then they blame you **okay, that's not nice is it** but Inter-form's more competitive than PE lessons **okay** so I'd rather play in PE, than inter-form **okay and, although you don't really like, you say you still like PE?** Yeah **um, why do you think you still like it, even though, you know,** I don't think I'm good at it? **Yeah** yeah, because, um, people are more supportive in PE lessons, because it only with like, the same girls for it, so they know the sports you're good at sports you are not good at, so, they, sort of, even though, you know you're not good, they don't really think you're really good, then, they still pick you, even though they know you're not, because you're still good friends with them and they're quite supportive, but if you're with like a different group, girls, in one lesson, then they wouldn't know, and if you like let them down, you feel worse, because, even though, they don't know you, you feel like you've let them down, even though you play with the other girls most of the time, **okay, and so generally then, do you have the same girls the same PE classes** yeah mostly, **so when does this like change happen, when do you suddenly get a different sort of PE class?** umm, we do like, groups, say, I'm in group one I think, and then we sometimes do group 1 and two, do PE lessons, and then group 1 and six or something **okay** and so, you do that for like, um, sort of a subject, and then, in the winter we have two changes I think, and will do gymnastics in our PE, we do gymnastics and swimming, in inside and stuff like that and you swap groups then, and you do swimming with the boys, which is embarrassing, cause, if you don't think you're like, look very good in a swimming costume, then it's embarrassing, **okay** so then you don't really like, well you, you, sort or when you're with the boys in swimming say, you try and do better than them so do they think wow she's good and stuff like that **why do you think it is specifically in swimming?** Is because that's the only lesson we really have with the boys, and when you're with boys, you don't want to show yourself up **okay, why don't you want to show yourself?** Because it's more embarrassing than with girls, because girls sort of all put themselves down, because I can't remember who said it, but, they said that girls always grade themselves down boys always grade themselves up, and if you have all your lessons with girls, then they know you, and they know you don't think you're very good at certain sports, but the boys around, and then, the boy sort of talk about, how good they are and then in, in swimming, you try and do really good, so that they'll think you're good **cool and you're quite good at swimming, do you you get picked the demonstrations** ? sort of yeah **yeah, did you say swimming is one of your better sports do you think** yeah **that's good, so then you're good at the 1 you do the boys then** yeah **so good in your swimming group, how good you think you are?** Then, sort of, with the top ones, but not like the top, **okay and how does that feel being up at the top?** I feel more confident doing it, if I know I'm better than most people, because then they, sort of always want you, to swim with them, or stuff, because then you feel like, if they think other people, know that you're good, then you feel confident doing this sport, **okay and how do you know other people think you're good** because there'll always like, say to you outside of PE oh you're really good at swimming, and then, they pick you for teams and stuff like, if we had swimming inter-form, then I'd, try and get in that, but I wouldn't do in football, because I don't like that, and I don't think I'm good **okay, and, um with the, what comparisons do you make in swimming do you think?** Um, sort of like, she said it isn't a race, Miss C, when we do it, but we always liked race, and whoever does it fastest, then that sort of means that you're better, even though you might not swim very well, you just swim fast, you still sort of, that defines you as good **okay, so see them** yeah **what about in um, like, you said in gymnastics** yeah **what do you think, how, do you think, you said you got above average didn't you and gym, did you get above average in swimming as well?** er, I think so **so, what sort of comparisons to you making gymnastics you think?** Um, because they give us like, lots to work on like a handstand and backward roll and stuff

and if you can't do that, then you feel like, you're not as good as people the can, because then if they do all the moves that they tell you to do, then that sort of makes you good, that defines you as good, in gymnastics **so do you look around and see what people can and can't do then?** Yeah, I sometimes did, they move on to a different sort of move, and you're, you still can't do one, then you feel like, oh I can't do that I'm rubbish, **okay and then what happens, so how do you feel, when you say you're sort of rubbish, can you explain that to me?** you just feel like, there's no point bothering with that move again, because you just can't do it and then if they give you a different one, you go back to where you're working and you just leave the one that you can't do and start trying to do the other, because then if you like, if people haven't seen you try and do the other one you can't do, if they see you do one that you can do, you think that they'll think you're good **okay, so a lot of it seems to be then, for you in PE, what other people about how good you are** yeah **where do you think that has come from?** um, it's coz, you have sort of groups, and when you, like in a PE group, there's a lot of people, not a lot but like, most, there's quite a few people in it, and then, you sort of try and be the best out of them, so that you get higher levels, because, it's sort of, it sort of competitive even though it isn't supposed to be, because you trying like you'd better than everybody else, even though, sometimes you aren't, you still try **okay, um so are there any, you said that you look at like your whole PE class, and where you are and stuff, are there any particular people, in the class may be a best friend who you compared to all the time?** yeah, like, my good friends, they're in, they're in all of my PE lessons, I always compare myself to them, because there's four of us and there's always one of us who's better and then you try and be better than them, and show them up, in sort of a jokey way, but yeah, I always compare myself to my friends, **okay and what sort of things are you comparing them** like, in say, tennis, if you didn't get it, and sort of do a backhand one and stuff like that, but if you lose it, if you hit it in the net, they sort to make a joke about you are you're rubbish, and then you try and not be rubbish, so you can be the one making the joke, rather than being the joke **okay that sort of like, so then I guess how skilful you are at hitting the ball that sort of thing,** yeah **what about another sports, so (bell) thats the end of the lesson isn't it. Okay thank you, I'll see you again in a few weeks.**

Appendix L

Study 2 – Ethical Approval and Ethics Forms

Ethical Approval

To: Jemima Barnes
Study 3 email communication with schools

21 April 2011 15:56

Dear Jemima,

Many thanks for these. I can now confirm that you have responded to all of the Committee's comments, and that your study has full ethical approval.
If, in the future, you wish to make amendments to your study, you should contact me in the first instance.
Kind Regards,

Zoe

Ref No: R11-P56

LOUGHBOROUGH UNIVERSITY ETHICAL ADVISORY SUB-COMMITTEE

RESEARCH PROPOSAL INVOLVING HUMAN PARTICIPANTS

Title: The effect of social comparisons on children's emotions and engagement in PE

Applicant: Dr C Spray, J Barnes

Department: SSEHS

Date of clearance: 21 March 2011

Comments of the Sub-Committee:

The Sub-Committee agreed to issue clearance to proceed subject to the following conditions:

- That confirmation was provided that the Headteacher of the school was happy for the project to proceed.
- That the Parental Letter was amended to include phone numbers of the Investigators.
- That confirmation was provided as to where the data collected would be stored.
- That the Participant Information Sheet was amended to remove the phrases 'funded by Loughborough University' and 'As the project is funded by Loughborough University, they own the data collected and also the final results of the project'.
- That confirmation was provided as to why the Participants had to provide a name in Question 4 of the Questionnaire.
- That confirmation was provided as to what would happen if a pupil stated that they didn't compare themselves to anyone.
- That the end of Questionnaire was amended to simply state 'thank you for taking the time to complete this questionnaire'.

Ethical Clearance Checklist

ETHICAL ADVISORY COMMITTEE

Ethical Clearance Checklist

(TO BE COMPLETED FOR ***ALL*** INVESTIGATIONS INVOLVING HUMAN PARTICIPANTS)

If your research is being conducted off-campus and ethical approval has been granted by an external ethics committee, you may not need to seek full approval from the University Ethical Advisory Committee. However you will be expected to provide evidence of approval and the terms on which this approval has been granted.

If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee for confirmation.

If your research is transferring into Loughborough University and approval was obtained from your originating institution, there is a requirement on the University to ensure that appropriate approvals are in place.

If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee with evidence of former approval and the terms on which this approval has been granted.

It is the responsibility of the individual investigators to ensure that there is appropriate insurance cover for their investigation.

If you are at all unsure about whether or not your study is covered, please contact the Finance Office to check.

Section A: Investigators

Title of Investigation

The effect of social comparisons on children's emotions and engagement in PE.

Name, Status and Email Address of Senior Investigators (University Staff Research Grade II and above):

(Please underline responsible investigator where appropriate)

Dr Christopher Spray C.M.Spray@lboro.ac.uk **Department:** School of Sport, Exercise and Health Sciences

Name, Status and Email Address of Other Investigators (other University Staff and Students): Jemima Barnes MSc – PhD research student J.S.Barnes@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences

A1. Do investigators have previous experience of, and/or adequate training in, the methods employed?

Yes ☒ **No**† ☐ †If **No**, Please provide details below

A2. Will junior researchers/students be under the direct supervision of an experienced member of staff?

Yes ☒ **No**† ☐ †If **No**, Please provide details below

A3. Will junior researchers/students be expected to undertake physically invasive procedures (not covered by a generic protocol) during the course of the research?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

A4. Are researchers in a position of direct authority with regard to participants (eg academic staff using student participants, sports coaches using his/her athletes in training)?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section B: Participants

Vulnerable Groups

Will participants be knowingly recruited from one or more of the following vulnerable groups?

B1. Children under 18 years of age (please refer to published guidelines) **Yes**[#] ☒ No ☐

B2. People over 65 years of age **Yes**[#] ☐ No ☒

B3. Pregnant women **Yes**[#] ☐ No ☒

B4. People with mental illness **Yes**[#] ☐ No ☒

B5. Prisoners/Detained persons **Yes**[#] ☐ No ☒

B6. Other vulnerable group (please specify) **Yes**[#] ☐ No ☒

 # If the procedure is covered by an existing generic protocol which refers specifically to the vulnerable group(s), please insert reference number here

If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

Chaperoning Participants

If appropriate, e.g. studies which involve vulnerable participants, taking physical measures or intrusion of participants' privacy:

B7. Will participants be chaperoned by more than one investigator at all times?

Yes ☐ **No*** ☐ **N/A**[†] ☒ [†]If **N/A,** please provide details below

B8. Will at least one investigator of the same sex as the participant(s) be present throughout the investigation?

Yes ☐ **No*** ☐ **N/A**[†] ☒ [†]If **N/A,** please provide details below

B9. Will participants be visited at home?

Yes* ☐ No ☒ **N/A**[†] ☐ [†]If **N/A,** please provide details below

*** Please submit a full application to the Ethical Advisory Committee.**

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

We are handing out questionnaires to groups during school time. There will always be both children and teachers present when the investigator is handing out and collecting in the questionnaires.

Section C: Methodology/Procedures

To the best of your knowledge, please indicate whether the proposed study:

C1. Involves taking bodily samples (please refer to published guidelines) **Yes**[#] ☐ No ☒

C2. Involves procedures which are likely to cause physical, psychological, social or emotional distress to participants **Yes**[#] ☐ No ☒

C3. Is designed to be challenging physically or psychologically in any way (includes any study involving physical exercise) **Yes**[#] ☐ No ☒

 # If the procedure is covered by an existing generic protocol, please insert reference number here

If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

C4. Exposes participants to risks or distress greater than those encountered in their normal lifestyle **Yes*** ☐ No ☒

C5. Involves collection of body secretions by invasive methods **Yes*** ☐ No ☒

C6. Prescribes intake of compounds additional to daily diet or other dietary manipulation/supplementation **Yes*** ☐ No ☒

C7. Involves testing new equipment **Yes*** ☐ No ☒

C8. Involves pharmaceutical drugs **Yes*** ☐ No ☒

(please refer to published guidelines)

C9. Involves use of radiation **Yes*** ☐ No ☒

(please refer to published guidelines). Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays).

C10. Involves use of hazardous materials **Yes*** ☐ No ☒

(please refer to published guidelines)

C11. Assists/alters the process of conception in any way **Yes*** ☐ No ☒

C12. Involves methods of contraception **Yes*** ☐ No ☒

C13. Involves genetic engineering **Yes*** ☐ No ☒

*** If you have answered 'Yes' to any of the above please submit a full application to the Ethical Advisory Committee**

Section D: Observation/Recording

D1. Does the study involve observation and/or recording of participants?

Yes ☐ No ☒ **If No**, please go to Section E

If Yes, D2. Will those being observed and/or recorded be informed that the observation and/or recording will take place? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section E: Consent and Deception

E1. Will participants give informed consent freely?

Yes ☒ If **yes** please complete the **Informed Consent** section below.

No* ☐ *If **no**, please submit a full application to the Ethical Advisory Committee.

Note: where it is impractical to gain individual consent from every participant, it is acceptable to allow individual participants to "opt out" rather than "opt in".

Informed Consent

E2. Will participants be fully informed of the objectives of the investigation and all details disclosed (preferably at the start of the study but where this would interfere with the study, at the end)?

Yes ☒ **No*** ☐

E3. Will participants be fully informed of the use of the data collected (including, where applicable, any intellectual property arising from the research)? Yes ☒ **No*** ☐

E4. For children under the age of 18 or participants who have impairment of understanding or communication:

- will consent be obtained (either in writing or by some other means)? Yes ☒ **No*** ☐ N/A ☐
- will consent be obtained from parents or other suitable person? Yes ☒ **No*** ☐ N/A ☐
- will they be informed that they have the right to withdraw regardless of parental/ guardian consent? Yes ☒ **No*** ☐ N/A ☐

E5. For investigations conducted in schools, will approval be gained in advance from the Head-teacher and/or the Director of Education of the appropriate Local Education Authority Yes ☒ **No*** ☐ N/A ☐

E6. For detained persons, members of the armed forces, employees, students and other persons judged to be under duress, will care be taken over gaining freely informed consent? Yes ☐ **No*** ☐ N/A ☒

*** Please submit a full application to the Ethical Advisory Committee**

Deception

E7. Does the study involve deception of participants (ie withholding of information or the misleading of

participants) which could potentially harm or exploit participants?

Yes ☐ No ☒ If **No**, please go to Section F **If yes,**

E8. Is deception an unavoidable part of the study? Yes ☐ **No*** ☐

E9. Will participants be de-briefed and the true object of the research revealed at the earliest stage upon completion of the study? Yes ☐ **No*** ☐

E10. Has consideration been given on the way that participants will react to the withholding of information or deliberate deception? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section F: Withdrawal

F1. Will participants be informed of their right to withdraw from the investigation at any time and to require their own data to be destroyed? Yes ☒ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section G: Storage of Data and Confidentiality

Please see University guidance on Data Collection and Storage

G1. Will all information on participants be treated as confidential and not identifiable unless agreed otherwise in advance, and subject to the requirements of law? Yes ☒ **No*** ☐

G2. Will storage of data comply with the Data Protection Act 1998?

(Please refer to published guidelines) Yes ☒ **No*** ☐

G3. Will any video/audio recording of participants be kept in a secure place and not released for use by third parties? Yes☒ **No*** ☐

G4. Will video/audio recordings be destroyed within six years of the completion of the investigation? Yes☒ **No*** ☐

G5. Will full details regarding the storage and disposal of any human tissue samples be communicated to the participants? Yes ☐ **No*** ☐ N/A☒

*** Please submit a full application to the Ethical Advisory Committee**

Section H: Incentives

H1. Have incentives (other than those contractually agreed, salaries or basic expenses) been offered to the investigator to conduct the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

H2. Will incentives (other than basic expenses) be offered to potential participants as an inducement to participate in the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section I: Work Outside of the United Kingdom

G1. Is your research being conducted outside of the United Kingdom? Yes ☐ No ☒ If **Yes,** you may need additional insurance cover/clearance for your research.

If, having completed this checklist, you will be making a full application to the EAC this issue will be checked for you as a part of the process. If however you do not need to complete a full application please contact Hiten Patel (H.Patel@lboro.ac.uk).

Section I: Declarations

Checklist Application only:

If you have completed the checklist to the best of your knowledge without selecting an answer marked with an * or †, your investigation is deemed to conform with the ethical checkpoints and you do not need to seek formal approval from the University's Ethical Advisory Committee. Please sign the declaration below, and lodge the completed checklist with your Head of Department or his/her nominee.

Declaration

I have read the University's Code of Practice on Investigations on Human Participants. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline. *Please sign below*

Checklist with additional information to the Committee:

If, upon completion of the checklist you have **ONLY** selected answers which require additional information to be submitted with this checklist (indicated by a †), please ensure that all the information is provided in detail and send this checklist to the Secretary to the EAC.

Full Application Needed:

If on completion of the checklist you have selected one or more answers which require the submission of a full proposal please download the relevant form from the Committee's web page.

A copy of this checklist, signed by your Head of Department should accompany the full submission to the Ethical Advisory Committee.

Signature of Responsible Investigator

Signature of Student (if appropriate)

Signature of Head of Department or his/her nominee

Date

Advice to Participants following the investigation

Investigators have a duty of care to participants.

When planning research, investigators should consider what, if any, arrangements are needed to inform participants (or those legally responsible for the participants) of any **health related (or other) problems previously unrecognised in the participant**. This is particularly important if it is believed that by not doing so the **participants well being is endangered**. Investigators should consider whether or not it is appropriate to recommend that participants (or those legally responsible for the participants) seek qualified professional advice, but should not offer this advice personally. Investigators should familiarise themselves with the guidelines of professional bodies associated with their research.

Research Proposal

ETHICAL ADVISORY COMMITTEE

RESEARCH PROPOSAL FOR HUMAN BIOLOGICAL OR PSYCHOLOGICAL AND SOCIAL

1. Project Title

The effect of social comparisons on children's emotions and engagement in PE.

2. Brief lay summary of the proposal for the benefit of non-expert members of the Committee. This should include the scientific reasons for the research, the background to it and the why the area is important.

Research has shown that social comparisons are linked with emotions. In the first study of my PhD I interviewed children about their experiences in PE and asked them about their emotional responses to social comparisons in this setting. Happiness, envy and pride were discussed, although further research is needed to gain a more holistic understanding of how comparisons in PE relate to children's emotional experiences.

In addition, some participants in my first study identified that when they compared with others and saw they were less able, they became disengaged and uninterested in PE. Pekrun, Goetz, Daniels, Stupnisky and Perry (2010) have recently been investigating achievement emotions in academic settings and have linked these with engagement and intrinsic motivation in academic subjects. Given the relationships described by children in the interview study and those found by Pekrun et al (2010) in academic settings, it seems important to investigate these relationships in PE which is also an achievement setting and try to find any moderators that may impact on these relationships.

Past research (Wood, 1989) also identified 3 motives for engaging in social comparisons, to evaluate, improve and enhance. Although some studies have looked at motives, most have not looked at whether there are any relationships between motives and outcomes. For example, does motive moderate the outcome of comparison? It is, therefore, the intention of this study to identify children's motives for engaging in comparisons and then see if these are linked to their engagement and emotions or if the motive acts as a moderator between the comparison and the outcomes.

3. Details of responsible investigator (supervisor in case of student projects)

Title: Dr Forename: Christopher Surname: Spray Department: School of Sport, Exercise and Health Sciences Email Address:C.M.Spray@lboro.ac.uk

Personal experience of proposed procedures and/or methodologies**.** 12 years experience conducting research using proposed methodologies and procedures. Significant experience conducting research with young people.

4. Names, experience, department and email addresses of additional investigators

Miss Jemima Barnes, School of Sport, Exercise and Health Sciences, J.S.Barnes@lboro.ac.uk , 1 year of personal experience of proposed research methods.

5. Proposed start and finish date and duration of project

Start date: April 2011 Finish date: August 2011 Duration: 5 months

Start date for data-collection: End of March 2011

NB. Data collection should not commence before EAC approval is granted.

6. Location(s) of project Primary and secondary schools within Leicestershire and Surrey.

7. Reasons for undertaking the study (eg contract, student research) PhD student research

8. Do any of the investigators stand to gain from a particular conclusion of the research project? No.

9a. Is the project being sponsored? Yes ☐No ☒

If Yes, please state source of funds including contact name and address

9b. Is the project covered by the sponsors insurance? Yes ☐No ☒

If No, please confirm details of alternative cover (eg University cover). University cover

10. Aims and objectives of project

To identify why children compare with their classmates and the effects these comparisons have on their engagement in and emotions experienced in PE.

Objectives:

- To determine which individuals or groups of children aged 11-18 use as comparison targets within physical education.
- To find out what the motives are behind the comparisons that the children make during physical education.
- To identify if there is a relationship between comparisons and engagement in PE.
- To find out if there are relationships between emotions and engagement.
- To identify if age, friendship and gender moderate the aforementioned relationships.

11a. Brief outline of project design and methodology

(It should be clear what each participant will have to do, how many times and in what order.)

Participants will be asked to fill out a short (20 to 30 minute) questionnaire in groups in a public setting with teachers present.

11b. Measurements to be taken

(Please give details of all of the measurements and samples to be taken from each participant.)

Participants will be asked to complete the attached questionnaire.

12. Please indicate whether the proposed study:

Involves taking bodily samples Yes ☐ No ☒

Involves procedures which are physically invasive (including the collection of body secretions by physically invasive methods) Yes ☐ No ☒

Is designed to be challenging (physically or psychologically in any way), or involves procedures which are likely to cause physical, psychological, social or emotional distress to participants Yes ☐ No ☒

Involves intake of compounds additional to daily diet, or other dietary manipulation / supplementation Yes ☐ No ☒

Involves pharmaceutical drugs (please refer to published guidelines) Yes ☐ No ☒

Involves testing new equipment Yes ☐ No ☒

Involves procedures which may cause embarrassment to participants Yes ☐ No ☒

Involves collection of personal and/or potentially sensitive data Yes ☐ No ☒

Involves use of radiation (Please refer to published guidelines. Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays) Yes ☐ No ☒

Involves use of hazardous materials (please refer to published guidelines) Yes ☐ No ☒

Assists/alters the process of conception in any way Yes ☐ No ☒

Involves methods of contraception Yes ☐ No ☒

Involves genetic engineering Yes ☐ No ☒

If Yes, please give specific details of the procedures to be used and arrangements to deal with adverse effects.

13. Participant Information

Number of participants to be recruited: 300 - 400

Details of participants (gender, age, special interests etc):

Male and Female secondary pupils aged between 11 and 18.

How will participants be selected? Please outline inclusion/exclusion criteria to be used:

Classes will be sampled from a number of secondary schools.

How will participants be recruited and approached?

Letters will be written to head teachers at a number of schools within Leicestershire and Surrey. If the school agrees for their pupils to take part, then the researchers will send letters to all the parents with a returnable opt out slip.

Please state demand on participants' time.

20-30 minutes to answer the questionnaire

14. Control Participants

Will control participants be used? Yes ☐ No ☒

If Yes, please answer the following:
Number of control participants to be recruited:
How will control participants be selected? Please outline inclusion/exclusion criteria to be used.
How will control participants be recruited and approached?
Please state demand on control participants' time.

15. Procedures for chaperoning and supervision of participants during the investigation

The questionnaires will be carried out in a school with a teacher and many children present at all times. In addition, the researcher handing out the questionnaires has had an enhanced CRB check carried out.

16. Possible risks, discomforts and/or distress to participants

None

17. Details of any payments to be made to the participants

None

18. Is written consent to be obtained from participants? **Yes** ☒ **No** ☐
If yes, please attach a copy of the consent form to be used.
If no, please justify.

19. Will any of the participants be from one of the following vulnerable groups?

Children under 18 years of age	Yes ☒	No ☐
People over 65 years of age	Yes ☐	No ☒
People with mental illness	Yes ☐	No ☒
Prisoners/other detained persons	Yes ☐	No ☒
Other vulnerable groups (please specify)	Yes ☐	No ☒

If Yes, to any of the above, please answer the following questions:
What special arrangements have been made to deal with the issues of consent?
Consent is being sought from Headteachers of schools. When this has been obtained, parents will then be sent an opt out letter which, if returned will exclude their child from taking part. Parents will have 2 weeks to return this form, otherwise consent will be assumed. After this children will then also be given a willingness to participate form to sign and also verbally told at the start of the study that they can withdraw from the study at any time they choose.

Have investigators obtained necessary police registration/clearance? (please provide details or indicate the reasons why this is not applicable to your study)
Both investigators have undergone an enhanced CRB disclosure through Loughborough University.

20. How will participants be informed of their right to withdraw from the study?

Through the willingness to participate form and also verbally before the study begins.

21. Will the investigation include the use of any of the following?

Observation of participants	Yes ☐	No ☒
Audio recording	Yes ☐	No ☒
Video recording	Yes ☐	No ☒

If Yes, to any, please provide detail of how the recording will be stored, when the recordings will be destroyed and how confidentiality of data will be ensured?

22. What steps will be taken to safeguard anonymity of participants/confidentiality of personal data?
Each participant and each school will be given a number.

23. Please give details of what steps have been taken to ensure that the collection and storage of data complies with the Data Protection Act 1998?

Please see University guidance on Data Collection and Storage **and** Compliance with the Data Protection Act**.**

Data will be stored for 6 years in keeping with the University guidance section 2. All participants will be informed in written and verbal formats of their right to withdraw at any time during the study even after data collection has concluded. Participants will be provided with information on who owns the data, how it will be stored, who will have access to it, length of time it will be stored for, what it will be used for and who will own the final results of the research.
Results of the questionnaire will not be reported at a school or individual level.
If an individual decides that they wish their data to be removed from the study then this will be done.

24. If human tissue samples are to be taken, please give details of and timeframe for the disposal of the tissue.

Please note that this information should also be outlined on the Participant Information Sheet
N/A

24. Insurance Cover

It is the responsibility of investigators to ensure that there is appropriate insurance cover for the procedure/technique.

The University maintains in force a Public Liability Policy, which indemnifies it against its legal liability for **accidental** injury to persons (other than its employees) and for accidental damage to the property of others. Any **unavoidable** injury or damage therefore falls outside the scope of the policy.

Will any part of the investigation result in **unavoidable** injury or damage to participants or property?
Yes ☐ No ☒

If Yes, please detail the alternative insurance cover arrangements and attach supporting documentation to this form.

The University Insurance relates to claims arising out of all **normal** activities of the University, but Insurers require to be notified of anything of an unusual nature

Is the investigation classed as **normal** activity? Yes ☒ No ☐

If No, please check with the University Insurers that the policy will cover the activity. If the activity falls outside the scope of the policy, please detail alternative insurance cover arrangements and attach supporting documentation to this form.

25. Declaration

I have read the University's Code of Practice on Investigations on Human Participants and have completed this application. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline.
I agree to provide the Ethical Advisory Committee with appropriate feedback upon completion of my investigation.

Signature of applicant: .....
Signature of Head of Department: .....
Date .....

Appendix M

Study 2 – Parental opt-out Letter

Loughborough University
School of Sport, Exercise and Health Sciences
Loughborough
Leicestershire
LE11 3TU

Date

Dear Parent/Carer,

I am a research student at Loughborough University who is interested in children's engagement and emotions experienced in physical education lessons. The Headteacher of your child's school has given permission to conduct my study within the Physical Education department. However, in line with Loughborough University procedures that safeguard good practice, I would also like to ask for your permission for your child to participate in my study.

The aim of the study is to understand with whom children compare in their physical education classes, why they do this and then what affect these comparisons have on them. Specifically we are interested in understanding the effect making comparisons may have on their engagement in PE and also the emotions that they experience as a result of making these comparisons. Your child will be asked to complete a short questionnaire which will take between 20 and 30 minutes.

All information collected will be treated confidentially and neither your child nor the school will be identifiable by name in any publication which may arise from the research.

Please complete the slip below and ask your son/daughter to return this letter to the PE staff at the school if you **do not** give permission for your son/daughter to participate in the research. Please ensure you return the letter **within 2 weeks**, otherwise it will be assumed that you give your consent. If you would like any further information about the study, then please contact either my supervisor Dr Christopher Spray or I at either of the email addresses below.

Yours faithfully,

Jemima Barnes
01509 228450
J.S.Barnes@lboro.ac.uk

Dr Christopher Spray
C.M.Spray@lboro.ac.uk
01509 226339

I **do not** give permission for _____ Form Group____ to take part in the research being conducted at _____

Signed _____
(Parent/Carer)

Appendix N

Study 2 – Participation Information Sheet

Social comparison processes in physical education

Participant Information Sheet

Supervisor:
Dr Christopher Spray
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. C.M.Spray@lboro.ac.uk, 01509 226339

Main investigator:
Miss Jemima Barnes
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. J.S.Barnes@lboro.ac.uk, 01509 228450

We are researchers from Loughborough University who are interested in learning about children's experiences in physical education. We would like to find out who you compare with in physical education lessons if anyone, and how you feel once you have compared yourself with this person.

In order to find our about your experiences, we have a questionnaire for you to answer which will take between 20 to 30 minutes.

Jemima will be present for the time it takes to complete the questionnaire so you can ask her any questions you have about the study at any time. She is carrying this study out as part of her studies at University.

You will be asked to provide your school name, date of birth, year group, ethnicity and gender. Any information that you give will be treated confidentially and **will not** be seen by your teachers. The questionnaire answers will be kept for 6 years. The results of the study will be written up as a paper for publication in a journal and as part of a research project. Neither you nor your school will not be identifiable by name.

Once I take part, can I change my mind?

Yes! After you have read this information and asked any questions you may have we will ask you to complete a Willingness to Participate Form, however, if at any time, before, during or after the session you wish to withdraw from the study please just contact the main investigator. You can withdraw at any time, for any reason and you will not be asked to explain your reasons for withdrawing.

I have some more questions who should I contact?

Please email Dr Christopher Spray, or Jemima Barnes with any questions that you have.

If after the study has been conducted you are not happy with the way the study was conducted then you can visit: http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm.

Appendix O

Study 2 – Willingness to Participate Form

A study of children's social comparison experiences in physical education

We are researchers from Loughborough University who are interested in learning about children's experiences in physical education. In order to find out about your experiences, we have put together a questionnaire that contains a number of sections. This questionnaire will take approximately 20 to 30 minutes to complete.

You **do not** have to fill out the questionnaire and no one will mind if you do not want to take part in the study. Any information that you give will be confidential and will not be seen by your teachers. If you have any questions, please feel free to ask them now, or at any time during the study. If you would like to take part in this study then please read the information below, fill in your name and sign in the space provided.

WILLINGNESS TO TAKE PART

1. The purpose of this study has been explained to me.
2. I have read and understood the information above.
3. I have been able to ask any questions that I had.
4. I understand that it is my choice to take part in this study.
5. I understand that I have the right to drop out from this study at any stage without giving a reason.
6. I understand that all the information I provide will be treated in strict confidence.
7. I agree to take part in this study.

Your name _____

Your signature _____

Signature of Investigator _____

Date _____

Appendix P

Study 2 – Questionnaire

Physical Education

Questionnaire

2011

The following questionnaire consists of 4 sections.

Please answer all the questions

There are no right or wrong answers

Please be honest when answering

Please ask questions if you don't understand anything

SECTION A

Please complete the following questions.

Q1. School Name: ……..

Q2. Year Group:……..

Q3. Tutor Group:……

Q4. Name of PE Teacher:…….

Q5. Gender *(please circle)* **:** Male

Female

Q6. **What is your date of birth?** *(Please write the date, month and year below)*

…… …….. …..……..……

(e.g. 1st, 14th, 23rd) (e.g. January, May, October) (e.g. 1990, 1994, 1999)

Q7. Which ethnic group best describes you? *(Please circle)*

White Black Asian Other

SECTION B

Before you begin answering the questions on the following pages, please think about the PE classes you have experienced in the last few weeks.

Please answer each question below.

There are no right or wrong answers.

(For questions 1 to 3 please circle the number that best represents your opinion)

Q1. How good are you compared to most of your classmates in PE? You can leave this blank if you are unsure.	Much worse 1	2	The same 3	4	Much better 5

	Not at all useful				Very useful
Q2. In general, how useful is what you learn in PE?	1	2	3	4	5

	Not at all important				Very important
Q3. For me, doing well in PE is	1	2	3	4	5

Q4. Please write down the name of one person in your class who you typically compare with in PE classes. By 'compare' we mean someone who you may look for similarities and differences with whilst doing an activity.

…….....…….....……..

(If you do not compare with anyone, please leave the about line blank and go to Section C)

Q5. Would you describe the person whom you named in Question 4 as a friend? (*Please circle)*

Yes No

If you answered **YES** to Question **5,** please answer Question 5b, if you answered no, please go on to Question 6 and continue with the remaining questions. (*Please circle the numbers which best represent your opinion*)

	Not at all important				Very important
Q5b. How important is this friendship to you?	1	2	3	4	5

Q6. How good do you feel you are in PE generally in comparison to the person you named in Question 4? You can leave this blank if you are unsure.	Much worse 1	2	The same 3	4	Much better 5

Q7. People compare with others for many reasons, sometimes for more than one reason. *(Please circle the number which best represents your reasons for comparing with the person you named in Question 4)*

a. To learn something from this person about how to improve on a task or a skill.	Strongly disagree 1	2	3	4	Strongly agree 5

b. To make me feel better about myself.	Strongly disagree 1	2	3	4	Strongly agree 5

c. To know whether I am better or worse than this person.	Strongly disagree 1	2	3	4	Strongly agree 5

If you have any other reasons for making comparisons please write them here

……
…….

Q8. The following questions ask you about some of the emotions that you may experience when you compare **with the person that you named in Question 4**. *(Please circle the number that best represents your opinion. Please remember to be honest when answering)*

I feel frustrated	Never 1	2	Sometimes 3	4	Often 5
I feel proud	Never 1	2	Sometimes 3	4	Often 5
I feel ashamed	Never 1	2	Sometimes 3	4	Often 5
I feel inferior	Never 1	2	Sometimes 3	4	Often 5
I feel disappointed	Never 1	2	Sometimes 3	4	Often 5
I feel jealous	Never 1	2	Sometimes 3	4	Often 5
I feel happy	Never 1	2	Sometimes 3	4	Often 5
I feel inspired	Never 1	2	Sometimes 3	4	Often 5

SECTION C

The following section asks you about your PE lessons, *(Please circle the number which best describes how you feel)*

	Not at all true			Very true
Q1. I try hard to do well in PE.	1	2	3	4
Q2. In PE, I work as hard as I can.	1	2	3	4
Q3. When I'm in PE, I participate in class discussions.	1	2	3	4
Q4. I pay attention in my PE class.	1	2	3	4
Q5. When I am in PE, I listen very carefully.	1	2	3	4
Q6. When I am in PE, I just act like I'm working.	1	2	3	4
Q7. I don't try very hard at PE.	1	2	3	4
Q8. In PE, I do just enough to get by.	1	2	3	4
Q9. When I am in PE I think about other things.	1	2	3	4
Q10. When I am in PE, my mind wanders.	1	2	3	4

SECTION D

The following questions ask you about yourself. *(Please circle the number which best describes how you feel)*

Q1. I am satisfied with the kind of person I am physically.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6
Q2. Physically, I am happy with myself.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6
Q3. I feel good about the way I look and what I can do physically.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6
Q4. Physically I feel good about myself.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6
Q5. I feel good about who I am and what I can do physically.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6
Q6. I feel good about who I am physically.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

Thank you for taking the time to complete this questionnaire

Appendix Q

Study 3 – Ethical Approval and Ethics Forms

Ethical Approval

From: Zoe Stockdale
Sent: 18 January 2012 15:25
To: Jemima Barnes
Cc: Christopher Spray
Subject: RE: EASC Research Proposal R11-P200

Dear Jemima,

Many thanks for your response to the Sub-Committee's comments. I can confirm that you have responded to all of the comments, and that your study now has full ethical approval.

If, in the future, you wish to make any amendments to the study, you should contact me in the first instance.

Kind Regards,

Zoe
Mrs Zoë Stockdale, Secretary, Ethical Advisory Committee, Research Office , Tel: 01509 222423
Email: Z.C.Stockdale@lboro.ac.uk

LOUGHBOROUGH UNIVERSITY ETHICAL ADVISORY SUB-COMMITTEE

RESEARCH PROPOSAL INVOLVING HUMAN PARTICIPANTS Ref No: R11-P200

Title:	An investigation of the relationship between children's self-determined motivation, self-efficacy and motives for comparison in physical education
Applicant:	Dr C Spray, J Barnes
Department:	SSEHS
Date of clearance:	13 December 2011

Comments of the Sub-Committee:

The Sub-Committee agreed to issue clearance to proceed subject to the following conditions:

- That confirmation was provided as to where the questionnaires would be stored once completed.
- That written confirmation was provided that the Headteacher of the school was happy for the project to proceed, once available.
- That the letter to the Headteacher(s) was amended to state 'Loughborough researcher' rather than 'Investigator'.
- That the Participant Information Sheet was amended to:
    - Include what will happen to the data already collected if a participant decides to withdraw from the study, and if there is a timeframe for withdrawal.
    - Alter the third sentence in the fourth paragraph to, 'The anonymous questionnaire answers will be kept for 6 years.'
- That question 11 of the Questionnaire was altered as the current question does not make sense: 'I take part in PE because in this way I will not get a low grade.'

ETHICAL ADVISORY COMMITTEE

Loughborough University

Ethical Clearance Checklist

(TO BE COMPLETED FOR ***ALL*** INVESTIGATIONS INVOLVING HUMAN PARTICIPANTS)

If your research is being conducted off-campus and ethical approval has been granted by an external ethics committee, you may not need to seek full approval from the University Ethical Advisory Committee. However you will be expected to provide evidence of approval and the terms on which this approval has been granted.
If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee for confirmation.

If your research is transferring into Loughborough University and approval was obtained from your originating institution, there is a requirement on the University to ensure that appropriate approvals are in place.
If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee with evidence of former approval and the terms on which this approval has been granted.

It is the responsibility of the individual investigators to ensure that there is appropriate insurance cover for their investigation.
If you are at all unsure about whether or not your study is covered, please contact the Finance Office to check.

Section A: Investigators

Title of Investigation

An investigation of the relationship between children's self-determined motivation, self-efficacy and motives for comparison in physical education.

Name, Status and Email Address of Senior Investigators (University Staff Research Grade II and above):
(Please underline responsible investigator where appropriate)
Dr Christopher Spray
C.M.Spray@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences
Name, Status and Email Address of Other Investigators (other University Staff and Students):
Jemima Barnes MSc – PhD research student
J.S.Barnes@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences

A1. Do investigators have previous experience of, and/or adequate training in, the methods employed?

Yes ☒ **No**† ☐ †If **No**, Please provide details below

A2. Will junior researchers/students be under the direct supervision of an experienced member of staff?

Yes ☒ **No**† ☐ †If **No**, Please provide details below

A3. Will junior researchers/students be expected to undertake physically invasive procedures (not covered by a generic protocol) during the course of the research?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

A4. Are researchers in a position of direct authority with regard to participants (eg academic staff using student participants, sports coaches using his/her athletes in training)?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section B: Participants

Vulnerable Groups

Will participants be knowingly recruited from one or more of the following vulnerable groups?

B1. Children under 18 years of age (please refer to published guidelines)	**Yes**# ☒ No ☐
B2. People over 65 years of age	**Yes**# ☐ No ☒
B3. Pregnant women	**Yes**# ☐ No ☒
B4. People with mental illness	**Yes**# ☐ No ☒
B5. Prisoners/Detained persons	**Yes**# ☐ No ☒
B6. Other vulnerable group (please specify)	**Yes**# ☐ No ☒

 # If the procedure is covered by an existing generic protocol which refers specifically to the vulnerable group(s), please insert reference number here
If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

Chaperoning Participants

If appropriate, e.g. studies which involve vulnerable participants, taking physical measures or intrusion of participants' privacy:

B7. Will participants be chaperoned by more than one investigator at all times?

Yes ☐ **No*** ☐ **N/A**†☒†If **N/A,** please provide details below

B8. Will at least one investigator of the same sex as the participant(s) be present throughout the investigation?

Yes ☐ **No*** ☐ **N/A**†☒†If **N/A,** please provide details below

B9. Will participants be visited at home?

Yes* ☐ No ☒ **N/A**†☐†If **N/A,** please provide details below

*** Please submit a full application to the Ethical Advisory Committee.**

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

We are handing out questionnaires to groups during school time. There will always be both children and teachers present when the investigator is handing out and collecting in the questionnaires.

Section C: Methodology/Procedures

To the best of your knowledge, please indicate whether the proposed study:

C1. Involves taking bodily samples **Yes**[#] ☐ No ☒
(please refer to published guidelines)
C2. Involves procedures which are likely to cause physical, psychological, social or emotional distress to participants **Yes**[#] ☐ No ☒
C3. Is designed to be challenging physically or psychologically in any way (includes any study involving physical exercise) **Yes**[#] ☐ No ☒

 # If the procedure is covered by an existing generic protocol, please insert reference number here
If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

C4. Exposes participants to risks or distress greater than those encountered in their normal lifestyle **Yes*** ☐ No ☒
C5. Involves collection of body secretions by invasive methods **Yes*** ☐ No ☒
C6. Prescribes intake of compounds additional to daily diet or other dietary manipulation/supplementation **Yes*** ☐ No ☒
C7. Involves testing new equipment **Yes*** ☐ No ☒
C8. Involves pharmaceutical drugs **Yes*** ☐ No ☒
(please refer to published guidelines)
C9. Involves use of radiation **Yes*** ☐ No ☒
(please refer to published guidelines). Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays).
C10. Involves use of hazardous materials **Yes*** ☐ No ☒
(please refer to published guidelines)
C11. Assists/alters the process of conception in any way **Yes*** ☐ No ☒
C12. Involves methods of contraception **Yes*** ☐ No ☒
C13. Involves genetic engineering **Yes*** ☐ No ☒

*** If you have answered 'Yes' to any of the above please submit a full application to the Ethical Advisory Committee**

Section D: Observation/Recording

D1. Does the study involve observation and/or recording of participants?
Yes ☐ No ☒ **If No**, please go to Section E

If Yes,
D2. Will those being observed and/or recorded be informed that the observation and/or recording will take place? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section E: Consent and Deception

E1. Will participants give informed consent freely?
Yes ☒ If **yes** please complete the **Informed Consent** section below.
No* ☐ *If **no**, please submit a full application to the Ethical Advisory Committee.

Note: where it is impractical to gain individual consent from every participant, it is acceptable to allow individual participants to "opt out" rather than "opt in".

Informed Consent

E2. Will participants be fully informed of the objectives of the investigation and all details disclosed (preferably at the start of the study but where this would interfere with the study, at the end)?
Yes ☒ **No*** ☐

E3. Will participants be fully informed of the use of the data collected (including, where applicable, any intellectual property arising from the research)? Yes ☒ **No*** ☐

E4. For children under the age of 18 or participants who have impairment of understanding or communication:
- will consent be obtained (either in writing or by some other means)?
Yes ☒ **No*** ☐ N/A ☐
- will consent be obtained from parents or other suitable person?
Yes ☒ **No*** ☐ N/A ☐
- will they be informed that they have the right to withdraw regardless of parental/ guardian consent?
Yes ☒ **No*** ☐ N/A ☐

E5. For investigations conducted in schools, will approval be gained in advance from the Head-teacher and/or the Director of Education of the appropriate Local Education Authority
Yes ☒ **No*** ☐ N/A ☐

E6. For detained persons, members of the armed forces, employees, students and other persons judged to be under duress, will care be taken over gaining freely informed consent?
Yes ☐ **No*** ☐ N/A ☒

*** Please submit a full application to the Ethical Advisory Committee**

Deception

E7. Does the study involve deception of participants (ie withholding of information or the misleading of participants) which could potentially harm or exploit participants?
Yes ☐ No ☒ If **No**, please go to Section F

If yes,
E8. Is deception an unavoidable part of the study? Yes ☐ **No*** ☐
E9. Will participants be de-briefed and the true object of the research revealed at the earliest stage upon completion of the study? Yes ☐ **No*** ☐
E10. Has consideration been given on the way that participants will react to the withholding of information or deliberate deception? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section F: Withdrawal

F1. Will participants be informed of their right to withdraw from the investigation at any time and to require their own data to be destroyed? Yes ☒ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section G: Storage of Data and Confidentiality

Please see University guidance on Data Collection and Storage

G1. Will all information on participants be treated as confidential and not identifiable unless agreed otherwise in advance, and subject to the requirements of law?
Yes ☒ **No*** ☐
G2. Will storage of data comply with the Data Protection Act 1998?
(Please refer to published guidelines) Yes ☒ **No*** ☐
G3. Will any video/audio recording of participants be kept in a secure place and not released for use by third parties? Yes ☒ **No*** ☐
G4. Will video/audio recordings be destroyed within six years of the completion of the investigation?
Yes ☒ **No*** ☐
G5. Will full details regarding the storage and disposal of any human tissue samples be communicated to the participants? Yes ☐ **No*** ☐ N/A ☒
*** Please submit a full application to the Ethical Advisory Committee**

Section H: Incentives

H1. Have incentives (other than those contractually agreed, salaries or basic expenses) been offered to the investigator to conduct the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

H2. Will incentives (other than basic expenses) be offered to potential participants as an inducement to participate in the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section I: Work Outside of the United Kingdom

G1. Is your research being conducted outside of the United Kingdom?

Yes ☐ No ☒

If **Yes,** you may need additional insurance cover/clearance for your research.

If, having completed this checklist, you will be making a full application to the EAC this issue will be checked for you as a part of the process. If however you do not need to complete a full application please contact Hiten Patel (H.Patel@lboro.ac.uk).

Section I: Declarations

Checklist Application only:

If you have completed the checklist to the best of your knowledge without selecting an answer marked with an * or †, your investigation is deemed to conform with the ethical checkpoints and you do not need to seek formal approval from the University's Ethical Advisory Committee. Please sign the declaration below, and lodge the completed checklist with your Head of Department or his/her nominee.

Declaration

I have read the University's Code of Practice on Investigations on Human Participants. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline.

Please sign below

Checklist with additional information to the Committee:

If, upon completion of the checklist you have **ONLY** selected answers which require additional information to be submitted with this checklist (indicated by a †), please ensure that all the information is provided in detail and send this checklist to the Secretary to the EAC.

Full Application Needed:

If on completion of the checklist you have selected one or more answers which require the submission of a full proposal please download the relevant form from the Committee's web page.

A copy of this checklist, signed by your Head of Department should accompany the full submission to the Ethical Advisory Committee.

Signature of Responsible Investigator

Signature of Student (if appropriate)

Signature of Head of Department or his/her nominee

Date

Advice to Participants following the investigation

Investigators have a duty of care to participants.

When planning research, investigators should consider what, if any, arrangements are needed to inform participants (or those legally responsible for the participants) of any **health related (or other) problems previously unrecognised in the participant**. This is particularly important if it is believed that by not doing so the **participants well being is endangered**. Investigators should consider whether or not it is appropriate to recommend that participants (or those legally responsible for the participants) seek qualified professional advice, but should not offer this advice personally. Investigators should familiarise themselves with the guidelines of professional bodies associated with their research.

Research Proposal

RESEARCH PROPOSAL
FOR HUMAN BIOLOGICAL OR PSYCHOLOGICAL
AND SOCIOLOGICAL INVESTIGATIONS

1. Project Title
An investigation of the relationship between children's self-determined motivation, self-efficacy and motives for comparison in physical education.

2. Brief lay summary of the proposal for the benefit of non-expert members of the Committee. This should include the scientific reasons for the research, the background to it and the why the area is important.
Self-determination theory (SDT; Deci & Ryan, 1985) provides a framework through which it is possible to study human motivation. It defines different sources of motivation both intrinsic and extrinsic and uses these to investigate the role these different types of motivation can play in both cognitive and social development. There is now a vast literature supporting SDT across cultures and situations, however, there remains little research on how the relationships in this theory may be moderated by social comparison.

Social comparison is when an individual engages in a comparison with another individual or compares with their own past or perceived future self. In the 'original' theory of social comparison processes, Festinger (1954) outlined multiple hypotheses, the primary one being that individuals possess a desire to self-evaluate. Since Festinger's (1954) theory, this area of research has grown into a field of its own in the same way as SDT, however, there has been little attempt in research to see if and how these theories may combine and/or interact. It is the intention of this study, therefore, to investigate whether social comparison moderates the relationship between self-determined motivation and well-being.

In addition to this, the proposed study seeks to understand whether motives for comparing with others are linked to their self-determined motivation and additionally whether these motives may be predictive of levels of well-being and self-efficacy. Self-efficacy (Bandura, 1977) is the belief that a person has in the ability to accomplish a given task. Bandura (1977) proposed that self-efficacy is a product of performance accomplishments, vicarious experience, verbal persuasion and emotional arousal and that this can vary by situation and context although a high self-efficacy in one area, may enhance a given opinion on ability to perform in another context or situation. Given that performance accomplishments are thought to inform self-efficacy and these accomplishments may in turn be evaluated comparatively, it is proposed that social comparison can play an indirect role in the formation and development of self-efficacy. In addition to this comparing with others may be inherent to vicarious experience (seeing others perform or succeed) suggesting again, that social comparison may indirectly effect self-efficacy.

Although there may be links between social comparison theory and self-efficacy and SDT, there may also be a relationship between motivation and self-efficacy. For example, high self-efficacy may enhance intrinsic motivation as the person feels competent in their ability to execute a task. These relationships are hypothesised, but once tested should provide insight into if and how these three theories inter-relate and can work together to help explain human behaviour.

It is the intention of this study to investigate children's motivation for taking part in physical education (PE), their PE self-efficacy and the social comparisons that children make and how and if these variables are all inter-related.

3. Details of responsible investigator (supervisor in case of student projects)
Title: Dr Forename: Christopher Surname: Spray

Department: School of Sport, Exercise and Health Sciences

Email Address:C.M.Spray@lboro.ac.uk

Personal experience of proposed procedures and/or methodologies**.** 13 years experience conducting research using proposed methodologies and procedures. Significant experience conducting research with young people.

4. Names, experience, department and email addresses of additional investigators
Miss Jemima Barnes, School of Sport, Exercise and Health Sciences, J.S.Barnes@lboro.ac.uk, 2 years of personal experience of proposed research methods.

5. Proposed start and finish date and duration of project
Start date: December 2011 Finish date: April 2012 Duration: 4 months

Start date for data-collection: Before the end of current school term (December 2011)

NB. Data collection should not commence before EAC approval is granted.

6. Location(s) of project
Secondary schools within Leicestershire and Surrey.

7. Reasons for undertaking the study (eg contract, student research)
PhD student research

8. Do any of the investigators stand to gain from a particular conclusion of the research project?
No.

9a. Is the project being sponsored? Yes ☐ No ☒
If Yes, please state source of funds including contact name and address

9b. Is the project covered by the sponsors insurance? Yes ☐ No ☒
If No, please confirm details of alternative cover (eg University cover).
University cover

10. Aims and objectives of project
To identify whether children's level of self-determined motivation is related to their social comparisons, self-efficacy and well-being in PE.

Objectives:

- To ascertain if there is a relationship between levels of self-determined motivation and motives for comparing with others in the PE class.
- To investigate if differing levels of self-determined motivation are linked to self-efficacy.
- To investigate if different motives for comparison are predictive of outcomes such as well-being and self-efficacy.

11a. Brief outline of project design and methodology
(It should be clear what each participant will have to do, how many times and in what order.)

Participants will be asked to fill out a short (20 to 30 minute) questionnaire in groups in a public setting with teachers present.

11b. Measurements to be taken
(Please give details of all of the measurements and samples to be taken from each participant.)

Participants will be asked to complete the attached questionnaire.

12. Please indicate whether the proposed study:
Involves taking bodily samples Yes ☐ No ☒

Involves procedures which are physically invasive (including the collection of body secretions by physically invasive methods) Yes ☐ No ☒

Is designed to be challenging (physically or psychologically in any way), or involves procedures which are likely to cause physical, psychological, social or emotional distress to participants Yes ☐ No ☒

Involves intake of compounds additional to daily diet, or other dietary manipulation / supplementation Yes ☐ No ☒

Involves pharmaceutical drugs (please refer to published guidelines) Yes ☐ No ☒

Involves testing new equipment Yes ☐ No ☒

Involves procedures which may cause embarrassment to participants Yes ☐ No ☒

Involves collection of personal and/or potentially sensitive data Yes ☐ No ☒

Involves use of radiation (Please refer to published guidelines. Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays) Yes ☐ No ☒

Involves use of hazardous materials (please refer to published guidelines) Yes ☐ No ☒

Assists/alters the process of conception in any way Yes ☐ No ☒

Involves methods of contraception Yes ☐ No ☒

Involves genetic engineering Yes ☐ No ☒

If Yes, please give specific details of the procedures to be used and arrangements to deal with adverse effects.

13. Participant Information

Number of participants to be recruited: 400 - 500

Details of participants (gender, age, special interests etc): Male and Female secondary pupils aged between 11 and 18.

How will participants be selected? Please outline inclusion/exclusion criteria to be used:

Classes will be sampled from a number of secondary schools.

How will participants be recruited and approached?

Letters will be written to head teachers at a number of schools within Leicestershire and Surrey. If the school agrees for their pupils to take part, then the researchers will send letters to all the parents with a returnable opt out slip.

Please state demand on participants' time.

20-30 minutes to answer the questionnaire

14. Control Participants

Will control participants be used? Yes ☐ No ☒

If Yes, please answer the following:

Number of control participants to be recruited:

How will control participants be selected? Please outline inclusion/exclusion criteria to be used.

How will control participants be recruited and approached?

Please state demand on control participants' time.

15. Procedures for chaperoning and supervision of participants during the investigation
The questionnaires will be carried out in a school with a teacher and many children present at all times. In addition, the researcher handing out the questionnaires has had an enhanced CRB check carried out.

16. Possible risks, discomforts and/or distress to participants None

17. Details of any payments to be made to the participants None

18. Is written consent to be obtained from participants? **Yes** ☒ **No** ☐

If yes, please attach a copy of the consent form to be used. **If no,** please justify.

19. Will any of the participants be from one of the following vulnerable groups?

Children under 18 years of age	Yes ☒	No ☐
People over 65 years of age	Yes ☐	No ☒
People with mental illness	Yes ☐	No ☒
Prisoners/other detained persons	Yes ☐	No ☒
Other vulnerable groups (please specify)	Yes ☐	No ☒

If Yes, to any of the above, please answer the following questions:

What special arrangements have been made to deal with the issues of consent?

Consent is being sought from Headteachers of schools. When this has been obtained, parents will then be sent an opt out letter which, if returned will exclude their child from taking part. Parents will have 2 weeks to return this form, otherwise consent will be assumed. After this children will then also be given a willingness to participate form to sign and also verbally told at the start of the study that they can withdraw from the study at any time they choose.

Have investigators obtained necessary police registration/clearance? (please provide details or indicate the reasons why this is not applicable to your study)

Both investigators have undergone an enhanced CRB disclosure through Loughborough University.

20. How will participants be informed of their right to withdraw from the study?
Through the willingness to participate form and also verbally before the study begins.

21. Will the investigation include the use of any of the following?

Observation of participants	Yes ☐	No ☒
Audio recording	Yes ☐	No ☒
Video recording	Yes ☐	No ☒

If Yes, to any, please provide detail of how the recording will be stored, when the recordings will be destroyed

and how confidentiality of data will be ensured?

22. What steps will be taken to safeguard anonymity of participants/confidentiality of personal data?

Each participant and each school will be given a number.

23. Please give details of what steps have been taken to ensure that the collection and storage of data complies with the Data Protection Act 1998?

Please see University guidance on Data Collection and Storage **and** Compliance with the Data Protection Act**.**
Data will be stored for 6 years in keeping with the University guidance section 2. All participants will be informed in written and verbal formats of their right to withdraw at any time during the study even after data collection has concluded. Participants will be provided with information on length of time date will be stored for and what it will be used for.

Results of the questionnaire will not be reported at a school or individual level.

If an individual decides that they wish their data to be removed from the study then this will be done.

24. If human tissue samples are to be taken, please give details of and timeframe for the disposal of the tissue.
Please note that this information should also be outlined on the Participant Information Sheet: N/A

24. Insurance Cover
It is the responsibility of investigators to ensure that there is appropriate insurance cover for the procedure/technique.

The University maintains in force a Public Liability Policy, which indemnifies it against its legal liability for **accidental** injury to persons (other than its employees) and for accidental damage to the property of others. Any **unavoidable** injury or damage therefore falls outside the scope of the policy.

Will any part of the investigation result in **unavoidable** injury or damage to participants or property?

Yes ☐ No ☒

If Yes, please detail the alternative insurance cover arrangements and attach supporting documentation to this form. The University Insurance relates to claims arising out of all **normal** activities of the University, but Insurers require to be notified of anything of an unusual nature

Is the investigation classed as **normal** activity? Yes ☒ No ☐

If No, please check with the University Insurers that the policy will cover the activity. If the activity falls outside the scope of the policy, please detail alternative insurance cover arrangements and attach supporting documentation to this form.

25. Declaration

I have read the University's Code of Practice on Investigations on Human Participants and have completed this application. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline.

I agree to provide the Ethical Advisory Committee with appropriate feedback upon completion of my investigation.
Signature of applicant:
Signature of Head of Department:
Date

Appendix R

Study 3 - Headteacher Letter

Loughborough University
School of Sport, Exercise and Health Sciences
Loughborough
Leicestershire
LE11 3TU

Date

Dear Headteacher,

I am a PhD research student at Loughborough University interested in understanding how children's motivation to take part in physical education may influence the comparisons that they make, and subsequently, their levels of well-being and confidence experienced in PE. Research so far suggests that social comparisons made in PE can have both positive and negative effects on engagement and disaffection, however, there is little evidence of whether children's motivation can influence the effect that social comparisons may have on them. Given the role that physical education can play in promoting children's physical activity and health, my supervisor, Dr Christopher Spray and I, would very much appreciate the opportunity to conduct research in schools. In return for your schools participation a bespoke report will be written for your school or, if preferred, I would be happy to give a presentation of the findings to your PE teachers.

We would like to distribute a short questionnaire to pupils at your school from years (depending on the school the years may change: 7 to 13). These could be completed at a time identified by you to be least disruptive to the children and their school day. We would prefer the questionnaire to be completed at school and with the presence of a Loughborough researcher if possible, so that any questions the children may have can be answered straight away. The questionnaire asks children about their motivation for taking part in PE, their reasons for comparing with others in the class and how they feel. The questionnaire will take a maximum of 30 minutes to complete although we imagine that for most pupils it will only take 20 minutes.

Please contact me at the address below if you will allow students at your school to take part in this research project. If you would like more information before making a decision then please contact my supervisor or I. No pupil would be obliged to take part. If you do decide to allow pupils from your school to take part, then neither the school nor any individual would be identifiable in any publications arising from the research findings. I have undergone enhanced criminal records disclosure and would be happy to provide you with a copy of this if needed.

If you have any queries please do not hesitate to contact me.

Yours faithfully,

Jemima Barnes MSc
J.S.Barnes@lboro.ac.uk
01509 228450

Dr Christopher Spray
C.M.Spray@lboro.ac.uk
01509 226339

Appendix S

Study 3 - Parental opt-out letter

Loughborough University
School of Sport, Exercise and Health Sciences
Loughborough
Leicestershire
LE11 3TU

Date

Dear Parent/Carer,

I am a research student at Loughborough University who is interested in understanding children's motivation for taking part in physical education lessons. The Headteacher of your child's school has given me permission to conduct my study within the Physical Education department. However, in line with Loughborough University procedures that safeguard good practice, I would also like to ask for your permission for your child to participate in the study.

The aim of the study is to understand whether children's motivation to take part in physical education is related to the comparisons that they make with other children in their class and how they feel in physical education. Your child will be asked to complete a short questionnaire which will take between 20 and 30 minutes.

All information collected will be treated confidentially and neither your child nor the school will be identifiable by name in any publication which may arise from the research.

Please complete the slip below and ask your son/daughter to return this letter to the PE staff at the school if you **do not** give permission for your son/daughter to participate in the research. Please ensure you return the letter **within 2 weeks**, otherwise it will be assumed that you give your consent. If you would like any further information about the study, then please contact either my supervisor Dr Christopher Spray or I at either of the email addresses below.

Yours faithfully,

Jemima Barnes
J.S.Barnes@lboro.ac.uk

Dr Christopher Spray
C.M.Spray@lboro.ac.uk
01509 226339

I **do not** give permission for _____ Form Group____ to take part in the research being conducted at

_____

Signed _____
(Parent/Carer)

Appendix T

Study 3 - Participant Information Sheet

Social comparison processes in physical education

Participant Information Sheet

Supervisor:
Dr Christopher Spray
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. C.M.Spray@lboro.ac.uk, 01509 226339

Main investigator:
Miss Jemima Barnes
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. J.S.Barnes@lboro.ac.uk, 01509 228450

We are researchers from Loughborough University who are interested in learning about adolescent's experiences in physical education. We are interested in your motivation for taking part in physical education and how you generally feel in your physical education lessons.

In order to find our about your experiences, we have a short questionnaire for you to answer which will take between 20 to 30 minutes.

Jemima will be present for the time it takes to complete the questionnaire so that you can ask her any questions you have about the study at any time. She is carrying this study out as part of her studies at University.

You will be asked to provide your school name, date of birth, year group, ethnicity and gender. Any information that you give will be treated confidentially and **will not** be seen by your teachers. The anonymous questionnaire answers will be kept for 6 years. The results of the study will be written up as a paper for publication in a journal and as part of a research project. Neither you nor your school will be identifiable by name.

Once I take part, can I change my mind?

Yes! After you have read this information and asked any questions you may have we will ask you to complete a Willingness to Participate Form, however, if at any time, before, during or after the session you wish to withdraw from the study please just contact the main investigator. You can withdraw at any time, for any reason and you will not be asked to explain your reasons for withdrawing. If you choose to withdraw at any time, your answers will be removed from the analysis and your questionnaire will be destroyed.

I have some more questions who should I contact?

Please email Dr Christopher Spray or Jemima Barnes with any questions that you have.

If after the study has been conducted you are not happy with the way the study was conducted then you can visit: http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm.

Appendix U

Study 3 - Willingness to Participate Form

A study of children's experiences in physical education

We are researchers from Loughborough University who are interested in learning about children's experiences in physical education. In order to find out about your experiences, we have put together a questionnaire that contains a number of sections. This questionnaire will take approximately 20 to 30 minutes to complete.

You **do not** have to fill out the questionnaire and no one will mind if you do not want to take part in the study. Any information that you give will be confidential and will not be seen by your teachers. If you have any questions, please feel free to ask them now, or at any time during the study. If you would like to take part in this study then please read the information below, fill in your name and sign in the space provided.

WILLINGNESS TO TAKE PART

1. The purpose of this study has been explained to me.
2. I have read and understood the information above.
3. I have been able to ask any questions that I had.
4. I understand that it is my choice to take part in this study.
5. I understand that I have the right to drop out from this study at any stage without giving a reason.
6. I understand that all the information I provide will be treated in strict confidence.
7. I agree to take part in this study.

Your name _____

Your signature _____

Signature of Investigator _____

Date _____

Appendix V

Study 3 – Questionnaire

Physical Education

Questionnaire

2012

The following questionnaire consists of 6 sections.

Please answer all the questions

There are no right or wrong answers

Please be honest when answering

Please ask questions if you don't understand anything

SECTION A

Please complete the following questions.

Q1. School Name: ……..

Q2. Year Group: ……

Q3. Name of Tutor (e.g 9LOR): …….

Q4. Do you currently take part in PE in your tutor group? (please circle one) Yes No

Q5. Name of your main PE teacher: …….

Q6. Day of PE class: ……

Q7. Lesson number PE class is in during the day (e.g. period 3): ……

Q8: Gender (please circle): Male Female

Q9. How old are you? (Please write number of years and whole months e.g. 14 years and 8 months)

……years ……months

Q10. Which ethnic group do you identify with? (please circle)

Asian Black White Other

SECTION B

Before you begin answering the questions on the following pages, please think about the PE classes you have experienced in the last few weeks.

Below you will see the following statement: I take part in PE… below this there is a series of statements which follow on from this statement. Please indicate how strongly you agree or disagree with these reasons for why **YOU** take part in PE.

There are no right or wrong answers and your PE teachers will NOT see your responses. Please be honest when answering.

I take part in PE….

Q1.	Because I would feel bad about myself if I didn't	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q2.	But I really don't know why	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q3.	Because PE is fun	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q4.	But I don't see why we should have PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q5.	Because I would feel bad if the other students thought that I am not good at PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q6.	Because PE is enjoyable	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q7	But I really feel I'm wasting my time in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q8.	Because it is important to me to do well in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q9.	But I can't see what I'm getting out of PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q10.	Because PE is exciting	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q11.	To make sure I will not get a low grade	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q12.	Because it is important to me to try in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q13.	So that the teacher won't yell at me	totally disagree 1	2	3	in between 4	5	6	totally agree 7

I take part in PE…

		totally disagree			in between			totally agree
Q14.	Because I enjoy learning new skills	1	2	3	4	5	6	7
		totally disagree			in between			totally agree
Q15.	Because it would bother me if I didn't	1	2	3	4	5	6	7
		totally disagree			in between			totally agree
Q16.	Because that's the rule	1	2	3	4	5	6	7
	Because it is important to me to be good	totally disagree			in between			totally agree
Q17.	in the sports we practice in PE	1	2	3	4	5	6	7
	Because I would feel bad if the teacher	totally disagree			in between			totally agree
Q18.	thought that I am not good at PE	1	2	3	4	5	6	7
	Because it is important to me to improve	totally disagree			in between			totally agree
Q19.	in the drills we do in	1	2	3	4	5	6	7

SECTION C

People compare with many different students in PE, those who might be better than them, those who they might feel are the same ability and those who aren't as good as them.

The following set of questions asks you about your reasons for comparing yourself with different pupils in your PE class. Please indicate how likely you are to compare with others in your class by responding to the following statements.

There are not right or wrong answers, so please be honest when answering.

		extremely unlikely				extremely likely
Q1.	So I can get better	1	2	3	4	5
		extremely unlikely				extremely likely
Q2.	To give me a goal	1	2	3	4	5
		extremely unlikely				extremely likely
Q3.	To learn what to do or what not to do	1	2	3	4	5
		extremely unlikely				extremely likely
Q4.	To make myself feel better	1	2	3	4	5
		extremely unlikely				extremely likely
Q5.	To feel good about my own abilities	1	2	3	4	5
		extremely unlikely				extremely likely
Q6.	To make me feel better about how I'm doing	1	2	3	4	5
		extremely unlikely				extremely likely
Q7.	To see how I'm doing	1	2	3	4	5
		extremely unlikely				extremely likely
Q8.	To provide insight into my own abilities	1	2	3	4	5
		extremely unlikely				extremely likely
Q9.	To see how well I'm performing	1	2	3	4	5

SECTION D

The following statements focus on your PE lessons. There are no right or wrong answers; we would simply like you to rate your confidence in your ability in your PE lessons.

So, please honestly rate your confidence in your ability at this moment in time to...

		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q1.	Try your hardest in every PE class	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q2.	Be physically fit enough to always perform well in PE	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q3.	Be enthusiastic in PE, even when the activity is hard or unfamiliar to you	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q4.	Learn all the skills and activities you are taught, even the most difficult ones	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q5.	Carry out your PE teacher's instructions at all times	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q6.	Perform all the skills you are taught in PE	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q7.	Attempt all the activities you cover in PE, even the hard or unfamiliar ones	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q8.	Practice and improve your skills in PE	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q9.	Perform well whenever you play games against classmates in PE	1	2	3	4	5

SECTION E

The following scale consists of a number of words that describe different feelings and emotions that you might experience in PE. Please read each item and then mark the appropriate answer in the space next to that word. Please indicate to what extent you have felt like this generally over the last few weeks in your PE lessons. Use the following scale to record your answers:

1	**2**	**3**	**4**	**5**
very slightly or not at all	a little	moderately	quite a bit	extremely

___ interested	___ excited
___ strong	___ active
___ proud	___ afraid
___ jittery	___ ashamed
___ guilty	___ scared
___ upset	___ nervous
___ distressed	___ hostile
___ enthusiastic	___ attentive
___ inspired	___ determined
___irritable	___ alert

SECTION F

This final set of questions asks you about the comparisons that you make with others in your class and how you feel about yourself.

(For questions 1 to 7 please circle the number that best represents your opinion. Please leave questions 1, 3, 5 and 7 blank if you are unsure)

Q1.	Considering most of the pupils in my PE class, I think I am	Much worse 1	2	The same 3	4	Much better 5	than/as them

Q2.	Physically, I am happy with myself.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

Q3.	How good are you compared to most of your classmates in PE?	Much worse 1	2	The same 3	4	Much better 5

Q4.	Physically I feel good about myself.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

Q5.	I believe in comparison to most of my classmates in PE I am	Much worse 1	2	The same 3	4	Much better 5	than/as them

Q6.	In PE I am	Much worse 1	2	The same 3	4	Much better 5	than/as most of my classmates

Q7.	I feel good about who I am physically.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

Q8. Please write down the name of one person in your class who you typically compare with in PE classes. By ‘compare’ we mean someone who you may look for similarities and differences with whilst doing an activity.

…….....…….....
.....
(If you do not compare with anyone, please leave the above line blank)

Q9. How good do you feel you are in PE generally in comparison to the person you named in Question 8? (Leave blank if unsure)	Much worse 1	2	The same 3	4	Much better 5

Thank you for taking the time to complete this questionnaire

Appendix W

Study 4 - Headteacher Letter

Address of School
Date

Dear Headteacher,

Recent research has shown that children's engagement in physical education lessons is related to their perception of ability within the class. As a PhD research student at Loughborough University, I am investigating what other factors might influence levels of engagement and well-being experienced by children in physical education.

It is with this motivation to further our understanding of children's engagement and well-being in physical education that I am contacting you. I am hoping that you might consider allowing me to distribute a short (20 minute) questionnaire to the pupils in years X and X at your school. The questionnaire asks children about their motivation for taking part in PE, their perceptions of ability in class and levels of well-being. In return for your school's participation a bespoke report would be written for your school or, if preferred, I would be happy to give a presentation of the findings to your PE teachers.

Perception of ability and well-being are now seen as a critical factors in children's engagement and success and any help that you could provide us with would be very valuable in moving this research forward. If you would be prepared to allow your students to take part or would like any further information before making a decision, please feel free to contact my supervisor, Dr Christopher Spray or myself using the details below. In terms of privacy, neither the school nor any individual would be identifiable in any publications arising from the research findings. With regard to child protection, I have undergone enhanced criminal records disclosure and would be happy to provide you with a copy of this if needed.

With my very best wishes for 2012,

Yours faithfully,

Jemima Barnes MSc — Dr Christopher Spray

J.S.Barnes@lboro.ac.uk — C.M.Spray@lboro.ac.uk

01509 228450 — 01509 226339

Appendix X

Study 4 - Ethics Approval and Ethics Forms

Ethical Approval Granted

From: Zoe Stockdale
Sent: 20 June 2012 11:55
To: Jemima Barnes
Cc: Christopher Spray
Subject: RE: Ethics Ref No: R12-P98

Dear Jemima,

Many thanks for your response to the Sub-Committee's comments. I can confirm that you have responded to all of the comments, and that your study now has full ethical approval.

If, in the future, you wish to make any amendments to the study, you should contact me in the first instance.

Kind Regards,

Zoe
Mrs Zoë Stockdale, Secretary, Ethical Advisory Committee, Research Office, Tel: 01509 222423
Email: Z.C.Stockdale@lboro.ac.uk

Ref No: R12-P98

LOUGHBOROUGH UNIVERSITY ETHICAL ADVISORY SUB-COMMITTEE RESEARCH PROPOSAL INVOLVING HUMAN PARTICIPANTS

Title:	An investigation of the relationships between children's social comparisons self-determined motivation and self-efficacy
Applicant:	Dr C Spray, J Barnes
Department:	SSEHS
Date of clearance:	15 June 2012

Comments of the Sub-Committee:
The Sub-Committee agreed to issue clearance to proceed subject to the following conditions:

- That written confirmation was provided (when available) that the Headteacher of the school was happy for the study to proceed.
- That confirmation was provided as to what the children would be asked to do if they were not permitted to participate in the research.
- That the Parental/Carer letter included information that the results of the study would be written up in a report, and that this would be available to the school.
- That the Participant Information Sheet included information that the results of the study would be written up in a report, and that this would be available to the school.
- That the Questionnaire was checked for formatting, to ensure that this was consistent throughout, and prevented any answers 'leaping out' at Participants.

Ethical Checklist

ETHICAL ADVISORY COMMITTEE

Ethical Clearance Checklist

(TO BE COMPLETED FOR ***ALL*** INVESTIGATIONS INVOLVING HUMAN PARTICIPANTS)

If your research is being conducted off-campus and ethical approval has been granted by an external ethics committee, you may not need to seek full approval from the University Ethical Advisory Committee. However you will be expected to provide evidence of approval and the terms on which this approval has been granted.

If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee for confirmation.

If your research is transferring into Loughborough University and approval was obtained from your originating institution, there is a requirement on the University to ensure that appropriate approvals are in place.

If you believe this statement applies to your research, please contact the Secretary of the Ethical Advisory Committee with evidence of former approval and the terms on which this approval has been granted.

It is the responsibility of the individual investigators to ensure that there is appropriate insurance cover for their investigation.

If you are at all unsure about whether or not your study is covered, please contact the Finance Office to check.

Section A: Investigators

Title of Investigation

An investigation of the relationships between children's social comparisons self-determined motivation and self-efficacy.

Name, Status and Email Address of Senior Investigators (University Staff Research Grade II and above):

(Please underline responsible investigator where appropriate)

Dr Christopher Spray

C.M.Spray@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences

Name, Status and Email Address of Other Investigators (other University Staff and Students):

Jemima Barnes MSc – PhD research student

J.S.Barnes@lboro.ac.uk

Department: School of Sport, Exercise and Health Sciences

A1. Do investigators have previous experience of, and/or adequate training in, the methods employed? Yes ☒ **No**† ☐ †If **No**, Please provide details below

A2. Will junior researchers/students be under the direct supervision of an experienced member of staff? Yes ☒ **No**† ☐ †If **No**, Please provide details below

A3. Will junior researchers/students be expected to undertake physically invasive procedures (not covered by a generic protocol) during the course of the research?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

A4. Are researchers in a position of direct authority with regard to participants (eg academic staff using student participants, sports coaches using his/her athletes in training)?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section B: Participants

Vulnerable Groups

Will participants be knowingly recruited from one or more of the following vulnerable groups?

B1. Children under 18 years of age (please refer to published guidelines) **Yes**# ☒ No ☐

B2. People over 65 years of age **Yes**# ☐ No ☒

B3. Pregnant women **Yes**# ☐ No ☒

B4. People with mental illness **Yes**# ☐ No ☒

B5. Prisoners/Detained persons **Yes**# ☐ No ☒

B6. Other vulnerable group (please specify) **Yes**# ☐ No ☒

 # If the procedure is covered by an existing generic protocol which refers specifically to the vulnerable group(s), please insert reference number here

If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

Chaperoning Participants

If appropriate, e.g. studies which involve vulnerable participants, taking physical measures or intrusion of participants' privacy:

B7. Will participants be chaperoned by more than one investigator at all times?

Yes ☐ **No*** ☐ **N/A**†☒†If **N/A,** please provide details below

B8. Will at least one investigator of the same sex as the participant(s) be present throughout the investigation?

Yes ☐ **No*** ☐ **N/A**†☒†If **N/A,** please provide details below

B9. Will participants be visited at home?

Yes* ☐ No ☒ **N/A**†☐†If **N/A,** please provide details below

*** Please submit a full application to the Ethical Advisory Committee.**

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

We are handing out questionnaires to groups during school time. There will always be both children and teachers present when the investigator is handing out and collecting in the questionnaires.

Section C: Methodology/Procedures

To the best of your knowledge, please indicate whether the proposed study:

C1. Involves taking bodily samples **Yes**[#] ☐ No ☒

(please refer to published guidelines)

C2. Involves procedures which are likely to cause physical, psychological, social or emotional distress to participants **Yes**[#] ☐ No ☒

C3. Is designed to be challenging physically or psychologically in any way (includes any study involving physical exercise) **Yes**[#] ☐ No ☒

 # If the procedure is covered by an existing generic protocol, please insert reference number here

If the procedure is not covered by an existing generic protocol, please submit a full application to the Ethical Advisory Committee

C4. Exposes participants to risks or distress greater than those encountered in their normal lifestyle **Yes*** ☐ No ☒

C5. Involves collection of body secretions by invasive methods **Yes*** ☐ No ☒

C6. Prescribes intake of compounds additional to daily diet or other dietary manipulation/supplementation **Yes*** ☐ No ☒

C7. Involves testing new equipment **Yes*** ☐ No ☒

C8. Involves pharmaceutical drugs **Yes*** ☐ No ☒

(please refer to published guidelines)

C9. Involves use of radiation **Yes*** ☐ No ☒

(please refer to published guidelines). Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays).

C10. Involves use of hazardous materials **Yes*** ☐ No ☒

(please refer to published guidelines)

C11. Assists/alters the process of conception in any way **Yes*** ☐ No ☒

C12. Involves methods of contraception **Yes*** ☐ No ☒

C13. Involves genetic engineering **Yes*** ☐ No ☒

*** If you have answered 'Yes' to any of the above please submit a full application to the Ethical Advisory Committee**

Section D: Observation/Recording

D1. Does the study involve observation and/or recording of participants?

Yes ☐ No ☒ **If No**, please go to Section E

If Yes,

D2. Will those being observed and/or recorded be informed that the observation and/or recording will take place? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section E: Consent and Deception

E1. Will participants give informed consent freely?

Yes ☒ If **yes** please complete the **Informed Consent** section below.

No* ☐ *If **no**, please submit a full application to the Ethical Advisory Committee.

Note: where it is impractical to gain individual consent from every participant, it is acceptable to allow individual participants to "opt out" rather than "opt in".

Informed Consent

E2. Will participants be fully informed of the objectives of the investigation and all details disclosed (preferably at the start of the study but where this would interfere with the study, at the end)?

Yes ☒ **No*** ☐

E3. Will participants be fully informed of the use of the data collected (including, where applicable, any intellectual property arising from the research)? Yes ☒ **No*** ☐

E4. For children under the age of 18 or participants who have impairment of understanding or communication:

- will consent be obtained (either in writing or by some other means)?

Yes ☒ **No*** ☐ N/A ☐

- will consent be obtained from parents or other suitable person?

Yes ☒ **No*** ☐ N/A ☐

- will they be informed that they have the right to withdraw regardless of parental/ guardian consent?

Yes ☒ **No*** ☐ N/A ☐

E5. For investigations conducted in schools, will approval be gained in advance from the Head-teacher and/or the Director of Education of the appropriate Local Education Authority

Yes ☒ **No*** ☐ N/A ☐

E6. For detained persons, members of the armed forces, employees, students and other persons judged to be under duress, will care be taken over gaining freely informed consent?

Yes ☐ **No*** ☐ N/A ☒

*** Please submit a full application to the Ethical Advisory Committee**

Deception

E7. Does the study involve deception of participants (ie withholding of information or the misleading of participants) which could potentially harm or exploit participants?

Yes ☐ No ☒ If **No**, please go to Section F

If yes,

E8. Is deception an unavoidable part of the study? Yes ☐ **No*** ☐

E9. Will participants be de-briefed and the true object of the research revealed at the earliest stage upon completion of the study? Yes ☐ **No*** ☐

E10. Has consideration been given on the way that participants will react to the withholding of information or deliberate deception? Yes ☐ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section F: Withdrawal

F1. Will participants be informed of their right to withdraw from the investigation at any time and to require their own data to be destroyed? Yes ☒ **No*** ☐

*** Please submit a full application to the Ethical Advisory Committee**

Section G: Storage of Data and Confidentiality

Please see University guidance on Data Collection and Storage

G1. Will all information on participants be treated as confidential and not identifiable unless agreed otherwise in advance, and subject to the requirements of law?

Yes ☒ **No*** ☐

G2. Will storage of data comply with the Data Protection Act 1998?

(Please refer to published guidelines) Yes ☒ **No*** ☐

G3. Will any video/audio recording of participants be kept in a secure place and not released for use by third parties? Yes☒ **No*** ☐

G4. Will video/audio recordings be destroyed within six years of the completion of the investigation?

Yes☒ **No*** ☐

G5. Will full details regarding the storage and disposal of any human tissue samples be communicated to the participants? Yes ☐**No*** ☐ N/A☒

*** Please submit a full application to the Ethical Advisory Committee**

Section H: Incentives

H1. Have incentives (other than those contractually agreed, salaries or basic expenses) been offered to the investigator to conduct the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

H2. Will incentives (other than basic expenses) be offered to potential participants as an inducement to participate in the investigation?

Yes† ☐ No ☒ †If **Yes**, Please provide details below

If you have selected one of the answers above marked with an † please provide additional information on how you intend to manage the issues (please continue onto a separate sheet if required), then submit this checklist to the Secretary to the EAC:

Section I: Work Outside of the United Kingdom

G1. Is your research being conducted outside of the United Kingdom?

Yes ☐ No ☒

If **Yes,** you may need additional insurance cover/clearance for your research.

If, having completed this checklist, you will be making a full application to the EAC this issue will be checked for you as a part of the process. If however you do not need to complete a full application please contact Hiten Patel (H.Patel@lboro.ac.uk).

Section I: Declarations

Checklist Application only:

If you have completed the checklist to the best of your knowledge without selecting an answer marked with an * or †, your investigation is deemed to conform with the ethical checkpoints and you do not need to seek formal approval from the University's Ethical Advisory Committee. Please sign the declaration below, and lodge the completed checklist with your Head of Department or his/her nominee.

Declaration

I have read the University's Code of Practice on Investigations on Human Participants. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline.

Please sign below

Checklist with additional information to the Committee:

If, upon completion of the checklist you have **ONLY** selected answers which require additional information to be submitted with this checklist (indicated by a †), please ensure that all the information is provided in detail and send this checklist to the Secretary to the EAC.

Full Application Needed:

If on completion of the checklist you have selected one or more answers which require the submission of a full proposal please download the relevant form from the Committee's web page.

A copy of this checklist, signed by your Head of Department should accompany the full submission to the Ethical Advisory Committee.

Signature of Responsible Investigator

Signature of Student (if appropriate)

Signature of Head of Department or his/her nominee

Date

Advice to Participants following the investigation

Investigators have a duty of care to participants.

When planning research, investigators should consider what, if any, arrangements are needed to inform participants (or those legally responsible for the participants) of any **health related (or other) problems previously unrecognised in the participant**. This is particularly important if it is believed that by not doing so the **participants well being is endangered**. Investigators should consider whether or not it is appropriate to

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Research Proposal

ETHICAL ADVISORY COMMITTEE

RESEARCH PROPOSAL FOR HUMAN BIOLOGICAL OR PSYCHOLOGICAL INVESTIGATIONS

Loughborough University

1. Project Title

An investigation of the relationships between children's social comparisons, self-determined motivation and self-efficacy.

2. Brief lay summary of the proposal for the benefit of non-expert members of the Committee. This should include the scientific reasons for the research, the background to it and the why the area is important.

Self-determination theory (SDT; Deci & Ryan, 1985) provides a framework through which it is possible to study human motivation. It defines different sources of motivation both intrinsic and extrinsic and uses these to investigate the role these different types of motivation can play in both cognitive and social development. There is now a vast literature supporting SDT across cultures and situations, however, there remains little research on how the relationships in this theory may be moderated by social comparison.

Social comparison is when an individual engages in a comparison with another individual or compares with their own past or perceived future self. In the 'original' theory of social comparison processes, Festinger (1954) outlined multiple hypotheses, the primary one being that individuals possess a desire to self-evaluate. Since Festinger's (1954) theory, this area of research has grown into a field of its own in the same way as SDT, however, there has been little attempt in research to see if and how these theories may combine and/or interact. It is the intention of this study, therefore, to investigate whether social comparisons moderate relationship between self-determined motivation and well-being.

In addition, the proposed study seeks to understand if any class level variables such as motivational climate and autonomy support are linked with children's self-determined motivation and social comparisons. From Achievement Goal Theory, we can hypothesise that those children who experience an ego climate will be more affected by social comparisons than those in a class where the climate is task orientated.

These relationships are hypothesised but once tested, should provide insight into if and how these theories inter-relate and can work together to help explain human behaviour.

It is the intention of this study to investigate adolescent's motivation for taking part in physical education (PE), their perceptions of climate and autonomy support, well-being in PE and the social comparisons that children make and how and if these variables are all inter-related.

3. Details of responsible investigator (supervisor in case of student projects)

Title: Dr Forename: Christopher Surname: Spray
Department: School of Sport, Exercise and Health Sciences
Email Address:C.M.Spray@lboro.ac.uk

Personal experience of proposed procedures and/or methodologies**.** 13 years experience conducting research using proposed methodologies and procedures. Significant experience conducting research with young people.

4. Names, experience, department and email addresses of additional investigators

Miss Jemima Barnes, School of Sport, Exercise and Health Sciences, J.S.Barnes@lboro.ac.uk, 2 years of personal experience of proposed research methods.

5. Proposed start and finish date and duration of project

Start date: June 2012 Finish date: August 2012 Duration: 2 months
Start date for data-collection: June 2012
NB. Data collection should not commence before EAC approval is granted.

6. Location(s) of project

Secondary schools within Leicestershire and Surrey.

7. Reasons for undertaking the study (eg contract, student research)

PhD student research

8. Do any of the investigators stand to gain from a particular conclusion of the research project?

No.

9a. Is the project being sponsored? Yes ☐ No ☒
If Yes, please state source of funds including contact name and address
9b. Is the project covered by the sponsors insurance? Yes ☐ No ☒
If No, please confirm details of alternative cover (eg University cover).
University cover

10. Aims and objectives of project

To identify whether children's level of self-determined motivation is related to their social comparisons, self-efficacy and well-being in PE. Furthermore this study aims to investigate whether class level variables, autonomy support and motivational climate, influence these relationships through mediation or moderation.

Objectives:

- To ascertain if there is a relationship between levels of self-determined motivation and well-being experienced in PE.
- To investigate if motivational climate and autonomy support moderate or mediate the relationship between self-determined motivation and well-being.
- To assess the relationships between social comparisons and well-being.
- To investigate if motivational climate and autonomy support moderate or mediate the effect of social comparisons on well-being.

11a. Brief outline of project design and methodology

(It should be clear what each participant will have to do, how many times and in what order.)
Participants will be asked to fill out a short (20 to 30 minute) questionnaire in groups in a public

setting with teachers present.

11b. Measurements to be taken

(Please give details of all of the measurements and samples to be taken from each participant.)
Participants will be asked to complete the attached questionnaire. We will also ask the school for the last grade each student received. This will allow us to assess whether children's perception of their ability (social comparison with the class) are the same as their actual standing within the class which can be found using the grades of students. Previous research has been criticised for only using self-report indices and this will allow us to use a more objective measure to assess children's ability within the class.

12. Please indicate whether the proposed study:

Involves taking bodily samples Yes ☐ No ☒
Involves procedures which are physically invasive (including the collection of body secretions by physically invasive methods) Yes ☐ No ☒
Is designed to be challenging (physically or psychologically in any way), or involves procedures which are likely to cause physical, psychological, social or emotional distress to participants Yes ☐ No ☒
Involves intake of compounds additional to daily diet, or other dietary manipulation / supplementation Yes ☐ No ☒
Involves pharmaceutical drugs (please refer to published guidelines) Yes ☐ No ☒
Involves testing new equipment Yes ☐ No ☒
Involves procedures which may cause embarrassment to participants Yes ☐ No ☒
Involves collection of personal and/or potentially sensitive data Yes ☐ No ☒
Involves use of radiation (Please refer to published guidelines. Investigators should contact the University's Radiological Protection Officer before commencing any research which exposes participants to ionising radiation – e.g. x-rays) Yes ☐ No ☒
Involves use of hazardous materials (please refer to published guidelines) Yes ☐ No ☒
Assists/alters the process of conception in any way Yes ☐ No ☒
Involves methods of contraception Yes ☐ No ☒
Involves genetic engineering Yes ☐ No ☒
If Yes, please give specific details of the procedures to be used and arrangements to deal with adverse effects.

13. Participant Information

Number of participants to be recruited: 400 - 500
Details of participants (gender, age, special interests etc): Male and Female secondary pupils aged between 11 and 18.
How will participants be selected? Please outline inclusion/exclusion criteria to be used:
Classes will be sampled from a number of secondary schools.
How will participants be recruited and approached?
Letters will be written to head teachers at a number of schools within Leicestershire and Surrey. If the school agrees for their pupils to take part, then the researchers will send letters to all the parents with a returnable opt out slip.

Please state demand on participants' time.
20-30 minutes to answer the questionnaire

14. Control Participants

Will control participants be used? Yes ☐ No ☒
If Yes, please answer the following:
Number of control participants to be recruited:
How will control participants be selected? Please outline inclusion/exclusion criteria to be used.
How will control participants be recruited and approached?

Please state demand on control participants' time.

15. Procedures for chaperoning and supervision of participants during the investigation

The questionnaires will be carried out in a school with a teacher and many children present at all times. In addition, the researcher handing out the questionnaires has had an enhanced CRB check carried out.

16. Possible risks, discomforts and/or distress to participants None

17. Details of any payments to be made to the participants None

18. Is written consent to be obtained from participants? **Yes** ☒ **No** ☐
If yes, please attach a copy of the consent form to be used.
If no, please justify.

19. Will any of the participants be from one of the following vulnerable groups?

Children under 18 years of age	Yes ☒	No ☐
People over 65 years of age	Yes ☐	No ☒
People with mental illness	Yes ☐	No ☒
Prisoners/other detained persons	Yes ☐	No ☒
Other vulnerable groups (please specify)	Yes ☐	No ☒

If Yes, to any of the above, please answer the following questions:

What special arrangements have been made to deal with the issues of consent?

Consent is being sought from Headteachers of schools. When this has been obtained, Jemima will email this confirmation to the ethics committee. Parents will then be sent an opt out letter which, if returned will exclude their child from taking part. Parents will have 2 weeks to return this form, otherwise consent will be assumed. After this children will then also be given a willingness to participate form to sign and also verbally told at the start of the study that they can withdraw from the study at any time they choose.

Have investigators obtained necessary police registration/clearance? (please provide details or indicate the reasons why this is not applicable to your study)

Both investigators have undergone an enhanced CRB disclosure through Loughborough University.

20. How will participants be informed of their right to withdraw from the study?

Through the willingness to participate form and also verbally before the study begins.

21. Will the investigation include the use of any of the following?

Observation of participants	Yes ☐	No ☒
Audio recording	Yes ☐	No ☒
Video recording	Yes ☐	No ☒

If Yes, to any, please provide detail of how the recording will be stored, when the recordings will be destroyed and how confidentiality of data will be ensured?

22. What steps will be taken to safeguard anonymity of participants/confidentiality of personal data?

Each participant and each school will be given a number.

23. Please give details of what steps have been taken to ensure that the collection and storage of data complies with the Data Protection Act 1998?

Please see University guidance on Data Collection and Storage **and** Compliance with the Data Protection Act**.**

Data will be stored for 6 years in keeping with the University guidance section 2. All participants will be informed in written and verbal formats of their right to withdraw at any time during the study even after data collection has concluded. Participants will be provided with information on length of time date will be stored for and what it will be used for.

Results of the questionnaire will not be reported at the school or an individual level.

If an individual decides that they wish their data to be removed from the study then this will be done.

24. If human tissue samples are to be taken, please give details of and timeframe for the disposal of the tissue.

Please note that this information should also be outlined on the Participant Information Sheet: N/A

24. Insurance Cover

It is the responsibility of investigators to ensure that there is appropriate insurance cover for the procedure/technique.

The University maintains in force a Public Liability Policy, which indemnifies it against its legal liability for **accidental** injury to persons (other than its employees) and for accidental damage to the property of others. Any **unavoidable** injury or damage therefore falls outside the scope of the policy.

Will any part of the investigation result in **unavoidable** injury or damage to participants or property?

Yes ☐ No ☒

If Yes, please detail the alternative insurance cover arrangements and attach supporting documentation to this form.

The University Insurance relates to claims arising out of all **normal** activities of the University, but Insurers require to be notified of anything of an unusual nature

Is the investigation classed as **normal** activity? Yes ☒ No ☐

If No, please check with the University Insurers that the policy will cover the activity. If the activity falls outside the scope of the policy, please detail alternative insurance cover arrangements and attach supporting documentation to this form.

25. Declaration

I have read the University's Code of Practice on Investigations on Human Participants and have completed this application. I confirm that the above named investigation complies with published codes of conduct, ethical principles and guidelines of professional bodies associated with my research discipline.

I agree to provide the Ethical Advisory Committee with appropriate feedback upon completion of my investigation.

Signature of applicant:
Signature of Head of Department:
Date:

Appendix Y

Study 4 - Parental opt-out letter

Loughborough University
School of Sport, Exercise and Health Sciences
Loughborough
Leicestershire
LE11 3TU

Date

Dear Parent/Carer,

I am a research student at Loughborough University who is interested in understanding children's motivation for taking part in physical education lessons. The Headteacher of your child's school has given me permission to conduct my study within the Physical Education department. However, in line with Loughborough University procedures that safeguard good practice, I would also like to ask for your permission for your child to participate in the study.

The aim of the study is to understand whether children's motivation to take part in physical education is related to the comparisons that they make with other children in their class and how they feel in physical education. Your child will be asked to complete a short questionnaire which will take between 20 and 30 minutes.

All information collected will be treated confidentially and neither your child nor the school will be identifiable by name in any publication which may arise from the research. The results from the study will also be written up as a report which will be available to the school.

Please complete the slip below and ask your son/daughter to return this letter to the PE staff at the school if you **do not** give permission for your son/daughter to participate in the research. Please ensure you return the letter **within 2 weeks**, otherwise it will be assumed that you give your consent. If you would like any further information about the study, then please contact either my supervisor Dr Christopher Spray or I at either of the email addresses below.

Yours faithfully,

Jemima Barnes
J.S.Barnes@lboro.ac.uk

Dr Christopher Spray
C.M.Spray@lboro.ac.uk
01509 226339

I **do not** give permission for _____ Form Group____ to take part in the research being conducted at

_____

Signed _____
(Parent/Carer)

Appendix Z

Study 4 - Participant Information Sheet

Loughborough University

Social comparison processes in physical education

Participant Information Sheet

Supervisor:
Dr Christopher Spray
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. C.M.Spray@lboro.ac.uk, 01509 226339

Main investigator:
Miss Jemima Barnes
Loughborough University, School of Sport, Exercise and Health Sciences, Loughborough, Leicestershire, LE11 3TU. J.S.Barnes@lboro.ac.uk, 01509 228450

We are researchers from Loughborough University who are interested in learning about adolescent's experiences in physical education. We are interested in your motivation for taking part in physical education and how you generally feel in your physical education lessons.

In order to find our about your experiences, we have a short questionnaire for you to answer which will take between 20 to 30 minutes.

Jemima will be present for the time it takes to complete the questionnaire so that you can ask her any questions you have about the study at any time. She is carrying this study out as part of her studies at University.

You will be asked to provide your school name, date of birth, year group, ethnicity and gender. Any information that you give will be treated confidentially and **will not** be seen by your teachers. The confidential questionnaire answers will be kept for 6 years. The results of the study will be written up as a paper for publication in a journal and as part of a research project. The results of the study will also be written up in report for your school. Neither you nor your school will be identifiable by name.

Once I take part, can I change my mind?

Yes! After you have read this information and asked any questions you may have we will ask you to complete a Willingness to Participate Form, however, if at any time, before, during or after the session you wish to withdraw from the study please just contact the main investigator. You can withdraw at any time, for any reason and you will not be asked to explain your reasons for withdrawing. If you choose to withdraw at any time, your answers will be removed from the analysis and your questionnaire will be destroyed.

I have some more questions who should I contact?

Please email Dr Christopher Spray or Jemima Barnes with any questions that you have.

If after the study has been conducted you are not happy with the way the study was conducted then you can visit: http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm.

Appendix AA

Study 4 - Willingness to Participate Form

A study of adolescent's social comparison experiences in physical education

We are researchers from Loughborough University who are interested in learning about adolescent's experiences in physical education. In order to find out about your experiences, we have put together a questionnaire that contains a number of sections. This questionnaire will take approximately 20 to 30 minutes to complete.

You **do not** have to fill out the questionnaire and no one will mind if you do not want to take part in the study. Any information that you give will be confidential and will not be seen by your teachers. If you have any questions, please feel free to ask them now, or at any time during the study. If you would like to take part in this study then please read the information below, fill in your name and sign in the space provided.

WILLINGNESS TO TAKE PART

1. The purpose of this study has been explained to me.
2. I have read and understood the information above.
3. I have been able to ask any questions that I had.
4. I understand that it is my choice to take part in this study.
5. I understand that I have the right to drop out from this study at any stage without giving a reason.
6. I understand that all the information I provide will be treated in strict confidence.
7. I agree to take part in this study.

Your name _____

Your signature _____

Signature of Investigator _____

Date _____

Appendix BB

Study 4 – Questionnaire

Physical Education

Questionnaire

2012

The following questionnaire consists of 8 sections.

Please answer all the questions

There are no right or wrong answers

Please be honest when answering

Please ask questions if you don't understand anything

SECTION A

Please complete the following questions.

Q1. School Name: ……..

Q2. Year Group: ……

Q3. Name of your main PE teacher: …….

Q4. Day of last PE class: ……

Q5. Lesson number of last PE class during the day (e.g. period 3): ……

Q6: Gender (please circle): Male Female

Q7. How old are you? (Please write number of years and whole months e.g. 14 years and 8 months)

……years……months

Q8. Which ethnic group do you identify with? (please circle)

Asian Black White Other

Q9. What was your grade on your last report?

…….

SECTION B

Before you begin answering the questions on the following pages, please think about the PE classes you have experienced in the last few weeks.

Below you will see the following statement: I take part in PE… below this there is a series of statements which follow on from this statement. Please indicate how strongly you agree or disagree with these reasons for why **YOU** take part in PE.

There are no right or wrong answers and your PE teachers will NOT see your responses. Please be honest when answering.

I take part in PE….

Q1.	Because I would feel bad about myself if I didn't	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q2.	But I really don't know why	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q3.	Because PE is fun	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q4.	But I don't see why we should have PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q5.	Because I would feel bad if the other students thought that I am not good at PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q6.	Because PE is enjoyable	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q7	But I really feel I'm wasting my time in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q8.	Because it is important to me to do well in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q9.	But I can't see what I'm getting out of PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q10.	Because PE is exciting	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q11.	To make sure I will not get a low grade	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q12.	Because it is important to me to try in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q13.	So that the teacher won't yell at me	totally disagree 1	2	3	in between 4	5	6	totally agree 7

I take part in PE…

Q14.	Because I enjoy learning new skills	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q15.	Because it would bother me if I didn't	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q16.	Because that's the rule	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q17.	Because it is important to me to be good in the sports we practice in PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q18.	Because I would feel bad if the teacher thought that I am not good at PE	totally disagree 1	2	3	in between 4	5	6	totally agree 7
Q19.	Because it is important to me to improve in the drills we do in	totally disagree 1	2	3	in between 4	5	6	totally agree 7

SECTION C

People compare with many different students in PE, those who might be better than them, those who they might feel are the same ability and those who aren't as good as them.

There are not right or wrong answers, so please be honest when answering.

For each item, circle either A or B			
In PE class, I find it more important to compare with my classmates . . .			
	A	or	B
1.	A . . . to see how I'm doing	or	B . . . to learn what to do/what not to do
2.	A . . . to make me feel better about how I'm doing	or	B . . . to provide insight into my own abilities
3.	A . . . to give me a goal	or	B . . . to feel good about my own abilities
4.	A . . . so that I know if I'm performing better or worse than them	or	B . . . so I can learn how to perform better
5.	A . . . so I know what ability I am	or	B . . . to make myself feel better
6.	A . . . so I can get better	or	B . . . so I can feel better about how I'm performing

SECTION D

The following statements focus on your PE lessons. There are no right or wrong answers; we would simply like you to rate your confidence in your ability in your PE lessons.

So, please honestly rate your confidence in your ability at this moment in time to...

		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q1.	Try your hardest in every PE class	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q2.	Be physically fit enough to always perform well in PE	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q3.	Be enthusiastic in PE, even when the activity is hard or unfamiliar to you	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q4.	Learn all the skills and activities you are taught, even the most difficult ones	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q5.	Carry out your PE teacher's instructions at all times	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q6.	Perform all the skills you are taught in PE	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q7.	Attempt all the activities you cover in PE, even the hard or unfamiliar ones	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q8.	Practice and improve your skills in PE	1	2	3	4	5
		no confidence at all	low confidence	moderate confidence	high confidence	complete confidence
Q9.	Perform well whenever you play games against classmates in PE	1	2	3	4	5

SECTION E

The following scale consists of a number of words that describe different feelings and emotions that you might experience in PE. Please read each item and then mark the appropriate answer in the space next to that word. Please indicate to what extent you have felt like this generally over the last few weeks in your PE lessons. Use the following scale to record your answers:

1	**2**	**3**	**4**	**5**
very slightly or not at all	a little	moderately	quite a bit	extremely

___ interested	___ excited
___ strong	___ active
___ proud	___ afraid
___ jittery	___ ashamed
___ guilty	___ scared
___ upset	___ nervous
___ distressed	___ hostile
___ enthusiastic	___ attentive
___ inspired	___ determined
___irritable	___ alert

SECTION F

This set of questions asks you about the comparisons that you make with others in your class and how you feel about yourself.

Q1a. Please write down the name of **one person** in your class who you typically compare with in PE classes below or tick the box if this applies. By 'compare' we mean someone who you may look for similarities and differences with whilst doing an activity.

Name:…….....…….....

I don't compare with an individual in my class

Q1b. How good do you feel you are in PE generally in comparison to the person you named in Question 1? (leave blank if you ticked the box in 1a)

Much worse 1 2 The same 3 4 Much better 5

Q2.	Considering **most of the pupils in my PE class**, I think I am	Much worse 1	2	The same 3	4	Much better 5	than/as them	I don't compare with others in my class

Q3.	Physically, I am happy with myself.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

Q4.	How good are **you compared to most** of your classmates in PE?	Much worse 1	2	The same 3	4	Much better 5	I don't compare with others in my class

Q5.	Physically I feel good about myself.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

Q6.	I believe in comparison to **most of my classmates** in PE I am	Much worse 1	2	The same 3	4	Much better 5	than/as them	I don't compare with others in my class

Q8.	In PE I am	Much worse 1	2	The same 3	4	Much better 5	**than/as most** of my classmates	I don't compare with others in my class

Q9.	I feel good about who I am physically.	False 1	Mostly False 2	More False than True 3	More True than False 4	Mostly True 5	True 6

SECTION G

Here are some statements about what your current PE class is like. Please read each one and **circle the number that is most correct.** If you have more than one teacher, the questions are about the teacher you spend most of your time with.

1.	The teacher praises us when we do better than our classmates	not at all true 1	2	somewhat true 3	4	very true 5
2.	The teacher makes students feel good when they improve a skill	not at all true 1	2	somewhat true 3	4	very true 5
3.	The teacher spends less time with students who aren't as good	not at all true 1	2	somewhat true 3	4	very true 5
4.	The teacher encourages us to learn new skills	not at all true 1	2	somewhat true 3	4	very true 5
5.	The teacher tells us who the best students in the class are	not at all true 1	2	somewhat true 3	4	very true 5
6.	The teacher tells students to help each other get better	not at all true 1	2	somewhat true 3	4	very true 5
7.	The teacher tells us that trying our best is the most important thing	not at all true 1	2	somewhat true 3	4	very true 5
8.	The teacher pays most attention to the best students in the class	not at all true 1	2	somewhat true 3	4	very true 5
9.	Teacher said that classmates should help each other improve their skills	not at all true 1	2	somewhat true 3	4	very true 5
10.	The teacher makes an example of us if we make a mistake/the teacher punishes us if we make a mistake	not at all true 1	2	somewhat true 3	4	very true 5
11.	The teacher says that we are all important to the class' success	not at all true 1	2	somewhat true 3	4	very true 5
12.	Teacher tells us to try and be better than our classmates	not at all true 1	2	somewhat true 3	4	very true 5

SECTION H

Finally, here are some statements about your current PE class. Please read each one and **circle the number that is most correct.** If you have more than one teacher, the questions are about the teacher you spend most of your time with.

1.	I feel that my teacher provides me with choices and options	strongly agree 1	2	3	in between 4	5	6	strongly disagree 7
2.	I feel understood by my teacher	strongly agree 1	2	3	in between 4	5	6	strongly disagree 7
3.	My teacher makes me feel confident in my ability to do well in PE	strongly agree 1	2	3	in between 4	5	6	strongly disagree 7
4.	My PE teacher encourages me to ask questions	strongly agree 1	2	3	in between 4	5	6	strongly disagree 7
5.	My teacher listens to how we would like to do things in class	strongly agree 1	2	3	in between 4	5	6	strongly disagree 7
6.	My teacher tries to understand how I see things before suggesting a new way to do things	strongly agree 1	2	3	in between 4	5	6	strongly disagree 7

Thank you for taking the time to complete this questionnaire